Air Permit Major Amendment Application

Otter Tail Ag Enterprises, LLC

Air Emission Permit Number: 11100077-002

Prepared for:
Otter Tail Ag Enterprises, LLC
24096 – 170th Avenue
Fergus Falls, MN 55637-7518

Prepared by:
Natural Resource Group, LLC
1000 IDS Center
80 South Eighth Street
Minneapolis, MN 55402

December 2008

Project No. OTA2007-222.00-340

Significant Permit Revision

Otter Tail Ag Enterprises, LLC

Prepared for:

Otter Tail Ag Enterprises, LLC
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Fergus Falls, MN 55637-7518

Prepared by:

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Minneapolis, MN 55402

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EXECUTIVE SUMMARY

Otter Tail Ag Enterprises, LLC (OTA) submits this significant permit revision application to amend the currently issued Air Emission Permit for the facility located in Fergus Falls, Minnesota. OTA requests that the volatile organic compound (VOC) emission limits for three units be modified based on recent emission testing results. The net change in potential VOC emissions be will zero; therefore, the potential emissions for the entire facility will not change.

OTA will continue to have a controlled potential to emit (PTE) less than 100 tons per year (tpy) for particulate matter (PM), PM less than ten microns in diameter (PM_{10}), oxides of nitrogen (NO_X), volatile organic compounds (VOC), sulfur dioxide (SO_2), and carbon monoxide (CO). Thus, the facility will remain a minor source with respect to Title V regulations. Total hazardous air pollutant (HAP) emissions will remain under 25 tpy, and emissions from the single largest HAP will remain under 10 tpy; therefore, the facility will not be subject to the National Emission Standards for Hazardous Air Pollutants (NESHAPs).

1.0 REVISIONS

This section details the proposed revisions to be made to OTA, permit number 11100077-002. The proposed changes to the facility will not have an effect on the minor source status of air emissions. The applicable Minnesota Pollution Control Agency (MPCA) permit modification application forms are included in section 3.0.

1.1 Changes to Existing Permit

OTA is proposing to modify the VOC emission limits from SV028 (Thermal Oxidizer), SV027 (Vent Gas Scrubber), and SV026 (CO_2 scrubber). The results of recent emission testing at OTA show that SV028 and SV027 meet permitted VOC emission limits, while SV026 does not. Five (5) lb/hr of VOC emissions from SV028 will be distributed between SV026 and SV027, to ensure that these units can comfortably operate within their permitted emission limits based upon current operating conditions. A summary of the test results and proposed changes is provided in Table 1-1. The total VOC emissions from the facility will not change from the permitted limit of 95.0 tpy. OTA is also evaluating potential physical changes to the CO_2 Scrubber to improve the unit's performance.

HAP potential to emit (PTE) emissions have also been revised for the CO_2 Scrubber and Thermal Oxidizer based on the recent emissions testing results. The total facility HAP emissions and total facility single HAP (acetaldehyde) emissions will not change from the permitted limits of 12.4 tpy and 9.0 tpy, respectively. Revised emission calculations are included in Appendix A.

Table 1-1 Revised VOC Emission Limits

Source	Test Results (lb/hr)	Current Limit (lb/hr)	Proposed Limit (lb/hr)
SV026 – CO_2 Scrubber	6.75	5.09	9.59
SV027 – Vent Gas Scrubber	1.03	1.15	1.65
SV028 – Thermal Oxidizer	0.65	7.89	2.89

2.0 EMISSION SUMMARY

A summary of the potential emissions for the facility is presented in Table 2-1. The table summarizes the revised potential emissions as presented in this application as well as the current permitted emission rates.

Table 2-1. Revised PTE

	PM (tpy)	PM_{10} (tpy)	SO_2 (tpy)	NO_x (tpy)	VOC (tpy)	CO (tpy)	Ind. HAP[1] (tpy)	Comb. HAPs[2] (tpy)
Revised PTE	83.9	68.2	13.7	94.7	95.0	94.6	9.0	12.4
Current Permitted PTE	83.9	68.2	13.7	94.7	95.0	94.6	9.0	12.4
Change in PTE	---	---	---	---	---	---	---	---

[1] Highest individual (ind.) HAP is acetaldehyde
[2] Includes combined (comb.) HAP emissions

3.0 AIR QUALITY PERMIT MAJOR AMENDMENT APPLICATION FORMS

Minnesota Pollution Control Agency

PERMIT CHANGE FORM **CH-CP-01**
COVER PAGE

AIR QUALITY 520 LAFAYETTE ROAD ST. PAUL, MN 55155-4194 01/31/07

1a) AQ Facility ID No.: 11100077

1b) AQ File No.:

2) Facility Name: Otter Tail Ag Enterprises LLC

3) Date: December 8, 2008

4) THIS APPLICATION IS FOR AN AMENDMENT TO A (Check Permit Type):

- ☐ Part 70 or PSD/NSR Permit
- ☒ State Permit
- ☐ No current permit to amend

5) THIS CHANGE OR NOTIFICATION IS FOR (Check as many boxes as apply):

- ☒ A Major Permit Amendment (Minn. R. 7007.1500)
  - ☐ includes a Major Modification under NSR
    - Send a complete copy of the application to EPA Region V – see instructions
    - Contact EPA Region V to begin the Endangered Species Assessment process – see instructions
  - ☐ includes establishment or modification of a PAL
  - ☐ includes incorporation of EMS provisions
  - ☐ A Reconstruction or Modification of NSPS Affected Facility Not Subject to NSR (Minn. R. 7007.1500, subp. 3a.)
- ☐ A Moderate Permit Amendment (Minn. R. 7007.1450, subp. 3)
- ☐ A Minor Permit Amendment (Minn. R. 7007.1450, subp. 2)
- ☐ An Administrative Amendment (Minn. R. 7007.1400)
- ☐ An Installation or Modification of a Part 61 NESHAP and/or a Part 60 NSPS Affected Facility at a Stationary Source with Potential-to-Emit below all Permit Thresholds (Minn. R. 7007.0500, subp. 2.C.(1))
- ☐ A Notification of Accumulated Insignificant Activities (Minn. R. 7007.1250)
- ☐ A Notification of Installation of Pollution Control Equipment (Minn. R. 7007.1150(C))
- ☐ A Notification of Replacement of a Unit (Minn. R. 7007.1150(C))
- ☐ A Notification of Changes That Contravene a Permit Term (Minn. R. 7007.1350)

6) CONFIDENTIALITY:

- ☐ This application contains material which is claimed to be confidential under Minn. Stat. §§ 13.37 subd. 1(b) and 116.075. Complete and attach Form CR-03. Your submittal must include both Confidential and Public versions of your application.
- ☐ Confidential Copy of Application attached
- ☐ Public Copy of Application attached

Minnesota Pollution Control Agency

520 LAFAYETTE ROAD ST. PAUL, MN 55155-4194

PERMIT CHANGE FORM **CH-GI-01**
FACILITY INFORMATION
October 25, 2006

1a) AQ Facility ID No.: 11100077

1b) AQ File No.:

2) Facility Name: Otter Tail Ag Enterprises, LLC

3) Facility Location:

Street Address: 24096 170th Avenue

City: Fergus Falls County: Otter Tail ZIP Code: 56537

Mailing Address: Same

City: State: ZIP Code:

4) Corporate/Company Owner:

Name: Otter Tail Ag Enterprises LLC

Mailing Address: 24096 170th Avenue

City: Fergus Falls State: MN ZIP Code: 56537

Owner Classification: ☒ Private ☐ Local Govt ☐ State Govt. ☐ Federal Govt. ☐ Utility

5) Corporate/Company Operator (if different than owner):

Name:

Mailing Address:

City: State: ZIP Code:

6) Co-permittee (if applicable):

Name:

Mailing Address:

City: State: ZIP Code:

7) Legally responsible official for this permit/facility:

Mr/Ms: Anthony Hicks Phone: (218) 998-4301

Title: CEO Fax: (218) 998-4302

At (check one): ☐ Owner Address ☐ Operator Address ☒ Emission Facility Address

☐ Other (specify)

8) Contact person for this permit:

Mr/Ms: Keith Wetzel Phone: (218) 998-4301

Title: Operations Manager Fax: (218) 998-4302

At (check one): ☐ Owner Address ☐ Operator Address ☒ Emission Facility Address

☐ Other (specify)

E-mail address: kwetzel@otaellc.com

9) All billings for annual fees should be addressed to:

Mr/Ms: Mr. Anthony Hicks Phone: (218) 993-4301

Title: CEO Fax: (218) 993-4302

At (check one): ☐ Owner Address ☐ Operator Address ☒ Emission Facility Address

☐ Other (specify) _____

10) Standard Industrial Classification (SIC) Code and description for the facility:

Primary: 2869 / Industrial Organic Chemicals, NEC

Secondary (if applicable): _____ / _____

Tertiary (if applicable): _____ / _____

11) Primary product produced (or activity performed) at the facility is:

fuel-grade ethanol production

12) Facility is: ☒ Stationary ☐ Portable

13) (reserved for future use)

14) Is environmental review required (either an Environmental Assessment Worksheet (EAW) or an Environmental Impact Statement (EIS)) for this facility?

☒ No ☐ Yes -- you may also be required to perform a state air toxics review for your facility. Please call (800) 646-6247 or locally (651) 297-2274.

15) Are you (or will you be, if this is a new facility) required to submit a Toxics Release Inventory (Form R) under SARA Title 313 for this facility? Call the Minnesota Emergency Planning and Community Right-to-Know Act (EPCRA) Program for more information, at 651-297-7372.

☒ Yes – Answer Question 15a ☐ No – Go on to Question 16

15a) Are you required to submit a Pollution Prevention Plan Progress Report in accordance with Minn. Stat. § 115D.08?

☐ No ☐ Yes, and the most recently required progress report has been submitted

☒ Yes, but a progress report has not been submitted because: (fill in reason below)

The facility began operations in 2008.

16) Is this facility within 50 miles of another state or the Canadian border?:

☒ Yes (specify which ones) ND SD ☐ No

17) Are you proposing any alternative operating or emissions trading scenarios in this application? (see Minn. R. 7007.0800, subp. 10 and 11)

☒ No ☐ Yes - attach a description of your proposal, including a statement on how the proposal will meet all applicable requirements (specifically, please address any applicable New Source Review requirements - see Form CH-04).

18) Person preparing this permit application:

Mr. / Ms. Ms. Katie Hill Brandt

Title: Air Quality Engineer

Phone: (612)347-6797 Fax: (612)347-6780 Date: 12/10/08

E-mail address klhillbrandt@nrg-llc.com

Minnesota Pollution Control Agency

AIR QUALITY
520 LAFAYETTE ROAD
ST. PAUL, MN 55155-4194

PERMIT CHANGE FORM **CH-CR-01**

CERTIFICATION

03/31/04

1a) AQ Facility ID No.: 11100077

1b) AQ File No.:

2) Facility Name.: Otter Tail Ag Enterprises LLC

You must sign this certification if you are applying for an amendment to your air quality permit, or if you are providing the agency with a notification required in Minn. R. 7007.0100 to 7007.1850.

I certify that:

a) Emissions resulting from all modifications are as stated in this application.

b) The modification(s) listed are not part of a larger project which would be subject to additional requirements.

c) I understand that if I modify my facility before I am issued an air emission permit, I do so at my own risk.

d) I understand that the modification(s) that I make to my facility before I am issued an air emission permit must be in compliance with any state and federal regulations and proposed permit conditions.

e) I understand that protection offered by the "permit shield" of Minn. R. 7007.1400 does not apply to minor or moderate permit amendments.

f) If I am applying for change of ownership/operational control, I am willing to comply with the terms of the existing permit.

Person certifying this permit application:

Mr./Ms.: Mr. Anthony Hicks

Title: CEO

Signature:

Phone: (218) 998-4301 Fax: (218) 998-4302

Date:

Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

CH-00

Project Screening
Air Quality Permit Program

AQ Facility ID No.: 11100077 AQ File No: _____

Facility Name: Otter Tail Ag Enterprises LLC

Instructions: Fill out this form last after you've determined the type of permit you need.

Check all applicable boxes on this form that describe your proposed project and your facility.

Applicable analyses:

- ☐ My project requires an Environmental Assessment Worksheet.
  Submitted to (who?): _____ on (date): _____
- ☐ My project requires an Environmental Impact Statement.
  Submitted to (who?): _____ on (date): _____
- ☐ My project requires a Prevention of Significant Deterioration (PSD) permit, utilizes the Plant-wide Applicability Limit requirements of 40 CFR § 52.21, and/or involves a Best Available Control Technology (BACT) Analysis (either a new analysis or revisions to previous permit conditions).
- ☐ My project involves a case-by-case Maximum Achievable Control Technology (MACT) determination under section 112(g)(2)(B) of the Clean Air Act Amendments of 1990 as described on form CH-07.
- ☐ My project involves a site-specific alternative monitoring request under 40 CFR § 60.13(i) or 40 CFR § 63.8(f).
- ☐ My project involves changes to limits or requirements that are identified as State Implementation Plan (SIP) requirements in my permit or Administrative Order.
- ☐ My project involves ambient air dispersion modeling for criteria pollutants.
- ☐ My project involves an Air Emissions Risk Analysis (AERA).
  Submitted to (who?): _____ on (date): _____
- ☐ Per the July 16, 2008, guidance on Greenhouse Gases (http://www.pca.state.mn.us/publications/greenhousegas-memo0708.pdf), my project requires a Greenhouse Gas Emissions Evaluation.
  Is the evaluation included with the permit application? ☐ Yes ☐ No
- ☐ My project requires at least one other media permit in addition to an air permit.
  _____ (list permits: e.g., NPDES permit).
  Application submitted to (who?): _____ on (date): _____
- ☒ None of the above

Industry Sector:

- ☐ Petroleum refining
- ☐ Pulp and/or paper mill
- ☐ Composite wood products (e.g., OSB)
- ☐ Metallic mining
- ☒ Non-beverage ethanol production
- ☐ Waste combustor
- ☐ Electric utility
- ☐ None of the above

GPOT-0004496

Minnesota Pollution Control Agency
520 LAFAYETTE ROAD ST. PAUL, MN 55155-4194

PERMIT CHANGE FORM **CH-01**

CHANGE DESCRIPTION

(FORMERLY MOD-01 MODIFICATION DESCRIPTION)

6/30/05

Use Form CH-02 to determine if a permit amendment is required for your proposed change or modification. If an amendment is required, provide below a description of each physical and operational change, or proposed change to existing permit conditions, included in this application. This includes addition of new units, removal or replacement of existing units, or changes which may result in debottlenecking of emission units.

1a) AQ Facility ID No.: 11100077

1b) AQ File No. _____

2) Facility Name.: Otter Tail Ag Enterprises LLC

3) Does your project involve construction or a physical or operational change to your facility?

☒ No. Go to question 5
☐ Yes. ☐ Construction or physical change ☐ Operational change

4) Do you need your permit issued by a certain date?

☐ No. Go to question 5
☐ Yes. Date: _____

Reason: _____

_____

5) Description of proposed project

Reallocate volatile organic compound (VOC) emission limits from the Thermal Oxidizer (SV 028) to the CO2 Scrubber (SV026) and Vent Gas Scrubber (SV27) based on recent performance test results.

6) Attach Form CD-01 to specify which applicable requirements need to be added or deleted from your permit.

CD-01 forms are at the end of Section 3.0 of this application.

Minnesota Pollution Control Agency

AIR QUALITY
520 LAFAYETTE ROAD
ST. PAUL, MN 55155-4194

PERMIT CHANGE FORM **CH-02**

ACTION TYPE DETERMINATION

(FORMERLY MOD-02 MODIFICATION CLASSIFICATION FLOW CHART)

03/07/06

1a) AQ Facility ID No.: 11100077 **1b)** AQ File No. _____

2) Facility Name.: Otter Tail Ag Enterprises LLC

Answer the questions on this form, referring to and completing the additional forms as directed, to determine if a permit or amendment is required (and if so what type), or if a notification is required.

3. Does the proposed change or modification require a major amendment? Complete Form CH-03 and all forms referenced therein.

   ☒ Yes. Go to question 8.

   ☐ No. Go to question 4.

4. Does the entire proposed change or modification consist only of insignificant activities described in Minn. R. 7007.1300, subparts 2 and/or 3?

   ☐ Yes. The proposed change qualifies as an insignificant modification. Use Form CH-12 to determine if notification to the MPCA is required. If notification is required, go to Form CH-14 to determine what must be submitted.

   ☐ No. Part of the project is not one of the listed insignificant activities listed in Minn. R. 7007.1300, subparts 2 and/or 3. Go to question 5.

5. Can the change be done through an administrative amendment? Use Form CH-08 to determine Yes or No.

   ☐ Yes. Go to Form CH-14 to determine what must be submitted.

   ☐ No. Go to question 6.

6. Can the change be made through the "contravening permit terms" provision? Use Form CH-09 to determine Yes or No.

   ☐ Yes. Go to Form CH-14 to determine what must be submitted.

   ☐ No. Go to question 7.

7. Calculate the emissions increase as described on Form CH-10. Is there an increase?

   ☐ Yes. Complete Form CH-10 to determine if a minor or moderate amendment is needed. If a minor or moderate amendment is needed, go to question 8. If the change qualifies as an insignificant modification, keep records and use Form CH-12 to determine if notification is required.

   ☐ No. Complete Form CH-12 to determine what notification or recordkeeping requirements apply.

8. Complete Form CH-11 to determine your status with regard to crossing permit thresholds, and indicate that status below.

   ☒ This change can be made through the permit amendment provisions of Minn. R. 7007.1450 or 7007.1500, using the forms indicated on Form CH-14.

   ☐ This change requires issuance of a Title V or State operating permit. Include a completed Total Facility Application.

9. Complete Form CH-13 to determine what state rules apply to the equipment you are adding or the changes you are proposing.

10. Complete Form CH-00, summarizing the category of change and industry type.

Minnesota Pollution Control Agency

AIR QUALITY
520 LAFAYETTE ROAD
ST. PAUL, MN 55155-4194

PERMIT CHANGE FORM **CH-03**

MAJOR PERMIT AMENDMENT DETERMINATION

(FORMERLY MOD-10 MAJOR PERMIT AMENDMENT DETERMINATION)

06/30/05

To answer the questions posed in this form, you will have to complete the additional forms referenced in the individual items.

This form refers to proposed "changes" and "modifications." A "modification" as defined at Minn. R. 7007.0100, subp. 14, includes

A. any change that constitutes a title I modification …; or

B. any physical change or change in the method of operation of an emissions unit, emission facility, or stationary source that results in an increase in the emission of a regulated air pollutant.

A "change" is a change to permit terms or conditions, in the absence of a modification as described above.

1a) AQ Facility ID No.: 11100077

1b) AQ File No. _____

2) Facility Name: Otter Tail Ag Enterprises LLC

3) Is the proposed change or modification a title I modification? It is if the answer to any of the following is "yes":

3a) Is the proposed change or modification subject to New Source Review? Use and submit Forms CH-04, CH-04a, and/or CH-04b, as applicable.

☐ YES ☒ NO

3b) Is the proposed change or modification a modification or reconstruction as defined for New Source Performance Standards? Use and submit Form CH-05.

☐ YES ☒ NO

3c) Is the proposed change or modification a hazardous air pollutant modification under Part 61 NESHAPs? Use and submit Form CH-06.

☐ YES ☒ NO

3d) Is the proposed change or modification defined as construction or reconstruction under Part 63 NESHAPs? Use and submit Form CH-07.

☐ YES ☒ NO

4) Does this modification change any permit conditions or amend existing permit requirements related to **monitoring, reporting, or record keeping** other than adding new requirements, eliminating the requirements if they are rendered meaningless because they apply to emissions that will no longer occur, or changing test methods if both the new and the old test methods are considered valid for the pollutant and source category (Minn. R. 7007.1500, subp. 1(A))?

☐ YES. Use and submit Form CD-01 to document such requirements. ☒ NO

5) Does this modification establish or amend any **source-specific permit condition** that is required to be based on a case-by-case determination of an emissions limit or standard, an ambient impacts analysis, visibility, or increment analysis (e.g., a modeling-based limit, BACT, MACT, etc.) (Minn. R. 7007.1500, subp. 1(B))?

☐ YES. Use and submit Form CD-01 to document such conditions. ☒ NO

6) Does this modification establish or amend any permit terms or conditions for which there is no underlying applicable requirement and that you have assumed to avoid an applicable requirement to which you would otherwise be subject? Such limits are usually synthetic minor limitations such as a limit on hours of operation. Please note that if you would like to add equipment under an existing emissions cap or limit, and the permit does not explicitly pre-authorize such additions, that is considered amending the limit or emissions cap. (Minn. R. 7007.1500, subp. 1(C)).

☒ YES. Use and submit Form CD-01 to document such conditions. ☐ NO

7) Does this modification establish, amend, renew, or distribute a **Plantwide Applicability Limit** under 40 CFR § 52.21(aa)? (This is only available to existing major sources under New Source Review.)

☐ YES. Use and submit Forms PAL-01 (and the forms referenced within PAL-01) and CD-01 to document conditions. (As of the date of this form, the PAL cover page (PAL-01) and the form for determination of a PAL (PAL-02) have been completed. The remaining forms for renewal, expiration allocation, and increasing a PAL, are not yet available.)

☒ NO

8) Is this modification subject to classification as a **major permit amendment under any *other* agency rule**?

☒ YES ☐ NO

9) Does this modification seek to establish or amend a federally enforceable emission cap (such as a synthetic minor limit which limits hours of operation) which avoids classification as a part 70 source?

☒ YES. Use and submit Form CD-01 to document conditions. ☐ NO

If you answered "YES" to one or more of the above questions, a major permit amendment is required.

Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

CH-04

Determination of New Source Review Status

Air Quality Permit Program

1a) AQ Facility ID No.: 11100077 1b) AQ File No.: _____

2) Facility Name: Otter Tail Ag Enterprises LLC

3) Is your facility defined as one of the following types of facilities?

Some standard industrial classification (SIC) code(s) applying to specific categories are given in parentheses to assist you in classifying your facility. The SIC codes provided are not meant to be an exhaustive list of facilities included in the category.

- Coal Cleaning Plants-With Thermal Dryers
- Portland Cement Plants (3241)
- Iron and Steel Mills (332X)
- Primary Copper Smelters (3331)
- Hydrofluoric Acid Plants (2819, 2899)
- Nitric Acid Plants (2873)
- Lime Plants (3274)
- Coke Oven Batteries (3312)
- Carbon Black Plants (Furnace Process, 2895)
- Fuel Conversion Plants
- Secondary Metal Production Plants (334X)
- Fossil-Fuel Boilers (or combination thereof) totaling more than 250 MMBtu/hr heat input
- Taconite Ore Processing Plants (1011)
- Charcoal Production Plants (2819, 2861)
- Kraft Pulp Mills (2611, 2621)
- Primary Zinc Smelters (3339)
- Primary Aluminum Ore Reduction Plants (3334)
- Municipal Incinerators Capable of Charging More Than 250 Tons of Refuse per Day
- Sulfuric Acid Plants (2819)
- Petroleum Refineries (2911)
- Phosphate Rock Processing Plants (1475)
- Sulfur Recovery Plants (2819)
- Primary Lead Smelters (3339)
- Sintering Plants*
- Chemical Process Plants (28XX)
- Petroleum Storage & Transfer Units, Total Storage Capacity over 300,000 Barrels
- Glass Fiber Processing Plants
- Fossil Fuel-Fired Steam Electric Plants of more than 250 MMBtu/hr heat input

** Processing of fine grain materials into coarser lumps (performed primarily on ores).*

☐ **Yes**, my facility is classified as one of the 28 sources listed above. A listed air emission source having a potential to emit (PTE) 100 tons per year (tpy) or more of any single regulated NSR pollutant is considered a major stationary source. For sources classified as one of the 28 listed, fugitive emissions must be included in the PTE. **For item 2 of this form, and for Form CH-04b if applicable, a 100-tpy emissions threshold must be used.**

☒ **No**, my facility is not classified as one of the 28 sources listed above. An air emission source not classified as one of the 28 sources listed above and having the PTE 250 tpy or more of any single regulated NSR pollutant is considered a major stationary source. **For item 2 of this form, and for Form CH-04b if applicable, a 250-tpy emissions threshold must be used.**

4) Is the current federally enforceable, PTE of your facility greater than or equal to the 100/250 tpy threshold for your facility, making your facility a major stationary source?

☐ **Yes.** My facility is currently considered a major stationary source. Go to question 5.

☒ **No.** Go to Form CH-04b.

5) Is your facility currently covered by a permit that contains a Plantwide Applicability Limit ("actuals PAL") as defined at 40 CFR Section 52.21(aa)(2)(i) and (v)?

☐ **Yes**. Go to question 6.

☐ **No**. Go to question 7.

6) Are you able to continue to meet the emissions limits set by the Plantwide Applicability Limit after the project?

☐ **Yes**. NSR is not applicable to the proposed change/modification. You need not complete the remainder of this form. You must determine if an amendment is needed under Minn. R. 7007.1150 – 7007.1500.

☐ **No**. You must complete a BACT analysis for all major and significant emissions units at your source. If installation of BACT still does not allow you to install the emission unit and maintain compliance with your PAL, you may apply for an increase in your PAL. Please see the Minnesota Pollution Control Agency fact sheet on PALs at www.pca.state.mn.us/air/permits/nsr, or Form PAL-05 (*not yet available as of the date of this form*), for guidance on increasing a PAL. Do not complete the remainder of this form.

7) Synthetic Minor Source: Are you proposing federally enforceable synthetic minor limits on the PTE of the facility to make the **entire facility *(including the proposed modification)*** a synthetic minor source?

☐ YES. Submit an application for a major amendment. Put proposed limits on CD-01 form. Do *not* complete CH-04a or CH-04b.

☐ **No**. Go to Form CH-04a.

Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

CH-04b

Determination of Increases at Non-Major Sources

Air Quality Permit Program

Instructions on page 3

1a) AQ Facility ID No.: 11100077 1b) AQ File No.: _____

2) Facility Name: Otter Tail Ag Enterprises LLC

Use this Form to calculate emissions increases at existing sources which are not major New Source Review (NSR) sources. If the facility is a major source under NSR, use Form CH-04a.

3) Use Table 1 to document the emissions increase for individual units using the calculation method found in 40 CFR § 52.21(a). See instructions for calculating emissions increases. Make additional copies of Table 1 if more than four units are affected. Summarize the total increases for each pollutant in Table 2. Attach your calculations.

Table 1

	EU SV26 ☐ New ☐ Replacement ☒ Modified ☐ Debottlenecked	EU SV27 ☐ New ☐ Replacement ☒ Modified ☐ Debottlenecked	EU SV28 ☐ New ☐ Replacement ☒ Modified ☐ Debottlenecked	EU ☐ New ☐ Replacement ☐ Modified ☐ Debottlenecked	
Pollutant	**Potential emissions (tpy)**	**Potential emissions (tpy)**	**Potential emissions (tpy)**	**Potential emissions (tpy)**	**Total (tpy)**
PM					
PM_{10} (including condensables)					
$PM_{2.5}$ (including condensables)					
NO_x					
SO_2					
CO					
Ozone (VOC)	19.71	2.19	-21.90		0
Lead					
Fluorides					
Sulfuric acid mist					
Total Reduced Sulfur including H_2S					
Total Reduced Sulfur Compounds including H_2S					
MWC Organics					
MWC Acid Gas					
MSW Landfill Gas					

Table 2 - Summary

Pollutant	Emissions from new, modified, or replacement units (from Table 1) (tpy)	Thresholds for minor sources ("No" to CH-04 question 2) (tpy)	
		Answered "Yes" to CH-04 question 1	Answered "No" to CH-04 question 1
PM		100	250
PM_{10} (including condensables)		100	250
$PM_{2.5}$ (including condensables)		100	250
NO_x		100	250
SO_2		100	250
CO		100	250
Ozone (VOC)	0	100	250
Lead		100	250
Fluorides		100	250
Sulfuric acid mist		100	250
Total Reduced Sulfur including H_2S		100	250
Total Reduced Sulfur Compounds including H_2S		100	250
MWC Organics [1]		100	250
MWC Acid Gas [2]		100	250
MWC Metals [3]		100	250
MSW Landfill Gas		100	250

Note 1: MWC Organics means Municipal Waste Combustor Organics. These are defined as total tetra-thro-octa-chlorinated dibenzo-para-dioxins and dibenzofurans.
Note 2: MWC acid gases are measured as the sum of sulfur dioxide and hydrochloric acid.
Note 3: MWC Metals are measured as particulate matter.

Minnesota Pollution Control Agency

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PERMIT CHANGE FORM **CH-05**

APPLICABILITY OF NSPS

(FORMERLY MOD-05 APPLICABILITY OF NSPS)
05/17/04

Complete this form to determine if the proposed change or modification results in new applicability of a New Source Performance Standard listed in Table 1.

1a) AQ Facility ID No.: 11100077

1b) AQ File No. _____

2) Facility Name: Otter Tail Ag Enterprises LLC

3) Is there a NSPS for a source category which includes the unit(s) you are installing, modifying, or reconstructing?

☐ Yes. Go to question 4

☒ No. Done with this Form. Answer "No" to question 3b) on Form CH-03.

4) Complete Question 4a) – 4c) for each new, modified, or reconstructed unit which may be subject to an NSPS following the proposed project. (Copy as necessary.)

4a) Unit	4b) NSPS Subpart(s) that may apply after project	4c) Do all of the NSPS listed in column 4b) for the unit listed in column 4a) currently apply (prior to the proposed project)? If this is a new unit, the answer is "no."	
		☐ Yes – done with this unit	☐ No
		☐ Yes – done with this unit	☐ No
		☐ Yes – done with this unit	☐ No
		☐ Yes – done with this unit	☐ No
		☐ Yes – done with this unit	☐ No

5) Did you check "no" in column 4c) for <u>any</u> unit in the table in question 4)?

☐ No. This indicates that NSPS currently applies to all units and there will be no newly applicable NSPS as a result of the proposed project. Done with this form. Answer "no" to question 3b on Form CH-03.

☐ Yes. Complete the remainder of this form for each unit for which you checked "no" in the last column of the table in question 4.

6) Installing a new unit to which the NSPS will apply?

☐ No. Go to Question 7).

☐ Yes – Complete Questions 6a) – 6e) for each new unit. (Copy as necessary.)

6a)	Emission Unit Number	_____
6b)	Emission Unit/Equipment Description	_____
6c)	Stack/Vent Number	_____
6d)	Date of Equipment Manufacture or Installation	(Month/Date/Year)

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PERMIT CHANGE FORM **CH-06**

APPLICABILITY OF PART 61 NESHAP

(FORMERLY MOD-06 APPLICABILITY OF PART 61 NESHAP)
03/31/04

Complete this form to determine if the proposed change or modification results in new applicability of a Part 61 NESHAP listed in Table 1.

1a) AQ Facility ID No.: 11100077

1b) AQ File No. _____

2) Facility Name.: Otter Tail Ag Enterprises LLC

3) Is there a Part 61 NESHAP for a source category which includes the unit(s) you are installing, modifying, or reconstructing?

☐ Yes. Go to question 4

☒ No. Done with this Form. Answer "No" to question 3c) on Form CH-03.

4) Complete Question 4a) – 4c) for each new, modified, or reconstructed unit which may be subject to a Part 61 NESHAP following the proposed project. (Copy as necessary.)

4a) Unit	4b) Part 61 Subpart(s) that may apply after project	4c) Do all of the NESHAPs listed in column 4b) for the unit listed in column 4a) currently apply (prior to the proposed project)? If this is a new unit, the answer is "no."	
		☐ Yes – done with this unit	☐ No
		☐ Yes – done with this unit	☐ No
		☐ Yes – done with this unit	☐ No
		☐ Yes – done with this unit	☐ No
		☐ Yes – done with this unit	☐ No

5) Did you check "no" in column 4c) for <u>any</u> unit in the table in question 4)?

☐ No. This indicates that NESHAP currently applies to all units and there will be no newly applicable NESHAPs as a result of the proposed project. Done with this form. Answer "no" to question 3c on Form CH-03.

☐ Yes. Complete the remainder of this form for each unit for which you checked "no" in the last column of the table in question 4.

6) Installing new equipment which will cause a Part 61 NESHAP to apply?

☐ No - Go to question 7).

☐ Yes – Complete 6a) – 6c) for each new unit. (Copy as necessary.) Use Form CD-01 to document the proposed methods of compliance. Include a highlighted photocopy of the standard.

6a) Emission Unit Number	
6b) Emission Unit/Equipment Description	
6c) Stack/Vent Number	

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CH-07

Applicability of Part 63 NESHAP for Amendments

Air Quality Permit Program

AQ Facility ID No.: 11100077

AQ File No.:

Facility Name: Otter Tail Ag Enterprises LLC

This form applies to emission changes due to the proposed change or modification; the questions do not apply to unchanged portions of an existing facility.

1) Are there or will there be Hazardous Air Pollutants (HAPs) emissions (listed on Table A) from any source affected by the proposed project?

☐ No. Done with this form. Answer "No" to Question 3d on Form CH-03.
☒ Yes. Go on to question 2

2a) Are you proposing to install new HAP-emitting sources, or reconstruct existing equipment that will emit HAPs following the reconstruction? (This specifically means "reconstruction" as defined at 40 CFR § 63.2 – if you modify existing equipment without meeting the definition of "reconstruction," the answer to this question is "No.")

☒ No. Done with this form. Answer "No" to Question 3d on Form CH-03.
☐ Yes. Go on to Question 2b of this form.

2b) Will the new or reconstructed source have the potential to emit 10 or more tons per year of any individual HAP, or 25 or more tons per year of total HAPs, before considering any limits the source may be subject to or limits you may propose later in this form?

☐ No Go to Question 10 of this form.
☐ Yes. Answer "Yes" to Question 3d on Form CH-04. Go on to Question 3 of this form.

3) Is the currently-permitted facility a major HAP source (considering potential emissions and all federally enforceable permit conditions)?

☐ No. Go to Question 6.
☐ Yes. Go to Question 4.

4) Will any of the new or reconstructed items be subject to any of the standards for major source categories listed in Table B?

☐ No. Go on to Question 5.
☐ Yes. List the source categories applicable to each new or reconstructed HAP-emitting equipment.

New or reconstructed source	Applicable Source Category (Subpart or Title)	Compliance Date

For each standard listed above, attach a copy of the National Emission Standards for Hazardous Air Pollutant (NESHAP) standard with the applicable parts highlighted. If the applicable standard offers more than one compliance option, make it clear which one you are choosing. Go on to Question 5.

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PERMIT CHANGE FORM **CH-11**

CROSSING PERMIT THRESHOLDS

(FORMERLY MOD-12 CROSSING PERMIT THRESHOLDS)
03/31/04

1a) AQ Facility ID No.: 11100077

1b) AQ File No. _____

2) Facility Name.: Otter Tail Ag Enterprises LLC

Use this form to determine if the proposed changes cause the facility to become subject for the first time to the requirement to obtain either a State or a Part 70 permit. Please attach your documentation.

Total Facility PTE before change	Total Facility PTE after change	Action required
☐ Below all permit thresholds	Remains below all permit thresholds and the change does not cause the source or any part to become subject to an NSPS (40 CFR pt. 60) or a Part 61 NESHAP (40 CFR pt. 61.	No permit action required
☐ Below all permit thresholds	Remains below all permit thresholds but the change causes the source or any part to become subject to an NSPS (40 CFR pt. 60) or a Part 61 NESHAP (40 CFR pt. 61.	Apply for and receive a permit only for those sources subject to that regulation. Check applicability of registration permit and general permit.
☐ Below all permit thresholds	Exceeds a threshold for a State permit but not for a Part 70 permit.	Apply for and receive a permit to construct before beginning actual construction. (See instructions for details.)
☐ Below all permit thresholds or above a state permit threshold but below all Part 70 thresholds	Exceeds a threshold for a Part 70 permit	
☒ Above a State permit threshold but below all Part 70 thresholds	Remains above a State permit threshold but below all Part 70 thresholds	You may amend your existing permit. If your operating permit has not been issued, but the application was submitted on time, you may apply for a permit to construct and operate the modification only. If you have not applied for an operating permit, you must apply for and receive either a State or Part 70 permit prior to beginning actual construction.
☐ Above Part 70 Threshold	Remains above Part 70 Threshold	

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CH-13

Applicability Of State Rules

Air Quality Permit Program

1a) AQ Facility ID No.: 11100077

1b) AQ File No. _____

2) Facility Name: Otter Tail Ag Enterprises LLC

Some businesses and activities in Minnesota are subject to the following rules. Read each question to determine if the rule applies to the equipment or processes you are installing or modifying. If so, be sure to include the rule in Form CD-01, if you are required to fill it out for this application.

3) Minnesota Standards of Performance for Stationary Sources (Minn. R. ch. 7011)

3a) Will you be installing or modifying equipment that meets the following definition?

"A furnace, boiler or other combustion equipment in Minnesota which burns fossil fuel for the purpose of producing steam, hot water, hot air, or other hot liquid, gas, or solid, where the smoke doesn't have direct contact with the heated medium for which another standard of performance has not been promulgated."

☒ No, my new or modified equipment **is not** subject to Minn. R. 7011.0500-7011.0551. Go to question 3b).

☐ Yes. Is or will the unit(s) be subject to a federal New Source Performance Standard (as identified on Form CH-05)?

- ☐ Yes, my new or modified equipment **is not** subject to Minn. R. 7011.0500-7011.0551. Go to question 3b).
- ☐ No, my new or modified equipment **is** subject to Minn. R. 7011.0500-7011.0551. Standards of Performance for Indirect Heating Fossil-Fuel Burning Equipment. (Read the rule to determine the specific requirements that apply.) List the subject unit(s):

_____

_____

_____

_____

3b) Is your new or modified equipment type or process equipment found in Table 3 on page 7? This table contains only state-specific requirements; it does not contain state rules that incorporate federal rules by reference.

☒ No, none of the Minnesota Rules listed in Table 3 apply to my new or modified equipment. Go to question 4).

☐ Yes, my new or modified equipment may be subject to the rule associated with it in Table 3. Read the associated rule to see if it applies.

3c) After reading through Table 3 and any rule that may apply to your proposed change, list the ones that do apply in Table 1 (next page). Again, Table 3 contains only state-specific requirements; it does not contain state rules that incorporate federal rules by reference. You do not need to list the state rules that incorporate federal rules by reference. You do not need to list the Standards of Performance for Indirect Heating Fossil-Fuel Burning Equipment again, if it applies (see 3a, above).

Table 1: New/Modified Equipment Subject to Minnesota Standards of Performance

Emission Source ID Number	Minnesota Rule Part that Applies	What the Rule Part Applies to (Whole facility or Specific Piece of Equipment)

4) Minnesota Acid Deposition Control (Minn. R. 7021.0050)

4a) Does your facility generate electricity?
- ☒ No. My facility is not subject to Acid Deposition Control Requirements. Go to question 5.
- ☐ Yes. Go to question 4b).

4b) Does your facility contain indirect heating equipment with a rated heat input of more than 5,000 million BTUs per hour?
- ☐ No. Go to question 4c).
- ☐ Yes. My facility (and possibly my proposed change) is subject to Acid Deposition Control Requirements.

4c) If your facility is an electric utility, is the total generating capacity of all the electric generating facilities in Minnesota which are owned by your facility's parent company more than 1,000 megawatts?
- ☐ No. My facility is not subject to Acid Deposition Control Requirements.
- ☐ Yes. My facility (and possibly my proposed change) is subject to Acid Deposition Control Requirements.

5) Standards of Performance for Industrial Process Equipment (Minn. R. 7011.0700 - 7011.0735)

5a) Are you installing or modifying any industrial process equipment on-site that may generate any air contaminant in any amount and is not regulated by a federal New Source Performance Standard or MN Rules Standard of Performance?
- ☐ Yes. List the units in Table 2, then go to item 5b).
- ☒ No, my new or modified equipment is not subject to the Industrial Process Equipment rule. Go to question 6).

5b) **Opacity Standard**
(Note: Opacity is a measure of visible emissions or how much of the view is obscured by stack emissions. The emissions causing opacity are often smoke or dust.)
- For industrial process equipment which was *in operation before July 9, 1969*, the equipment shall not exhibit greater than 20 percent opacity, except for one six-minute period per hour of not more than 60 percent opacity. An exceedance of this opacity standard occurs whenever any one-hour period contains two or more six-minute periods during which the average opacity exceeds 20 percent or whenever any one-hour period contains one or more six-minute periods during which the average opacity exceeds 60 percent.
- For industrial process equipment which was *not in operation before July 9, 1969*, the equipment shall not exhibit greater than 20 percent opacity.

5c) Does any of the industrial process equipment you listed in Table 2 have particulate control equipment with a collection efficiency of at least 99 percent if it was in operation before July 9, 1969, or 99.7 percent if it was not in operation before July 9, 1969?
- ☐ No. Go to question 5d).
- ☐ Yes. These units are considered to be in compliance with the remaining requirements of this rule.
  - For those units meeting this criterion which were in operation before July 9, 1969, complete Table 2 by checking the box labeled "Collection Efficiency > 99%."
  - For those units meeting this criterion which were not in operation before July 9, 1969, complete Table 2 by checking the box labeled "Collection Efficiency > 99.7%."
  - Then, if there are units listed in Table 2 which are not controlled by control equipment with a collection efficiency of 99% or 99.7% (as applicable), go on to question 5d).

5d) Has it been demonstrated that the operation of the entire facility in compliance with all ambient air quality standards? This is typically shown through some level of computer dispersion modeling.
- ☐ Yes. Go to question 5e).
- ☐ No. Skip to item 5i).

5e) Is the facility located outside of the seven county Minneapolis-St. Paul metropolitan region?
- ☐ Yes. Go to question 5f)
- ☐ No. Skip to item 5i).

5f) Is the facility located outside of the city of Duluth?
- ☐ Yes. Go to question 5g).
- ☐ No. Skip to item 5i).

5g) Is the facility located at least 1/4 mile from any residence or public roadway?
- ☐ Yes. Go to question 5h).
- ☐ No. Skip to item 5i).

5h) Answer this question individually for each remaining unit listed in Table 2 (those which were not identified in item 5c) as being controlled by control equipment having a control efficiency of 99% or 99.7% (as applicable)). Does the industrial process equipment have particulate control equipment with a collection efficiency of at least 85 percent?
- ☐ Yes, the unit is considered to be in compliance with the remaining requirements of this rule. For each unit for which you can answer "yes" to question 5h), complete Table 2 by checking the box labeled "Outside MSP & Duluth, ¼ mile from roads/residences, collection efficiency > 85%." Answer question 5h) for each remaining unit on Table 2.
- ☐ No. For each unit for which you answered "No" to question 5h), complete Table 2 as described in item 5i). Then go to question 6).

5i) Complete Table 2 for all remaining industrial process equipment listed (those which were not identified in question 5c) as being controlled by control equipment having a control efficiency of 99% or 99.7% (as applicable)). Use Table 4 to determine the particulate limit in either pounds per hour (lb/hr) or grains per dry standard cubic foot (gr/dscf). Then go to question 6).

6) Waste Combustors (Minn. R. 7011.1201-7011.1290)

Note: Depending on the type of waste combustor you operate, you may be instructed to fill out one or more of the following forms:

- WC-01 -- Required if you determine that your waste combustor requires a permit.
- WC-02 -- Required if you install/operate a Class IV waste combustor at a hospital.
- WC-03 -- Required if you do not met the stack height requirements of Minn. R. 7011.1235.

If after reading through the following section, you determine that you are required to fill out one or more of the WC forms, contact the Air Quality Permit Document Coordinator.

6a) Are you proposing installing or modifying a waste combustor?

"Waste Combustor" means any emissions unit or emission facility where mixed municipal solid waste, solid waste, or refuse-derived fuel is combusted, and includes incinerators, energy recovery facilities, or other combustion devices. A metals recovery incinerator is a waste combustor. A combustion device combusting primarily wood, or at least 70 percent fossil fuel and wood in combination with up to 30 percent papermill wastewater treatment plant sludge is not a waste combustor. A soil treatment facility, paint burn-off oven, wood heater, or residential fireplace is not a waste combustor.

"Wood" is defined as: wood, wood residue, bark, or any derivative fuel or residue thereof, in any form, including sawdust, sander dust, wood chips, wood scraps, slabs, millings, shavings, and processed pellets made from wood and other forest residues.

A facility that is co-firing Refuse Derived Fuel (RDF) or Municipal Solid Waste (MSW) at rates less than 30 percent by weight is not regulated as a waste combustor, but is regulated as a boiler.

☐ Yes, I am installing or modifying a waste combustor. Answer questions 6b through 6e to determine whether you are allowed to continue to operate, and what type of permit the waste combustor requires. Allowed waste combustors must obtain an air emissions permit.

☒ No, the facility equipment is not subject to this rule.

6b) Is the waste combustor solely a crematory, pathological or an animal carcass incinerator?

☐ Yes. It is subject to standards of performance in Minn. R. 7011.1215, subp. 3. The waste combustor is an insignificant activity that does not need to be reported.

☐ No, the facility equipment is not subject to this rule.

6c) Is the design capacity of the waste combustor equal to or greater than 3 million Btu/hr?

"Design capacity" means: the hourly throughput of the waste combustor unit based on heat input from solid waste to the combustion system as stated by the manufacturer or designer, based on accepted design and engineering practices. For a non-continuous feed system, design capacity means the total heat input from solid waste per cycle.

If you don't have a manufacturer's design capacity in terms of heat input, you may estimate heat input by the following formula:

$$\mathbf{H_{in} = (HHV) \times (R)}$$

Where:

H_{in} = Heat input rate
HHV = heat value of waste
R = waste input rate, in lb/hr, as defined by the manufacturer
Commercial/Retail/Institutional Wastes = 7000 Btu/lb
General Industrial Wastes = 9000 Btu/lb
Medical/Infectious Wastes = 10,000 Btu/lb

☐ Yes, the waste combustor has a design capacity of 3 million Btu/hr or greater. The waste combustor is subject to the standards of performance applicable to waste combustors. There are also additional permit application requirements for this unit, as described in Minn. R. 7007.0501, or 7011.1210. Complete form WC-01.

☐ No, the heat input rate is below 3 million Btu/hr. Go to question 6d.

6d) Is the waste combustor used as a metal recover incinerator?

"Metals recovery incinerator" means a furnace or incinerator used primarily to recover precious and non-precious metals by burning the combustible fraction from waste. An aluminum sweat furnace is not a metals recovery incinerator.

☐ Yes. The waste combustor is subject to the standards of performance applicable to waste combustors. There are also additional permit application requirements for this unit, as described in Minn. R. 7007.0501, or 7011.1210. Complete form WC-01.

☐ No. Go to question 6e).

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CH-14

Complete Application Requirements

Air Quality Permit Program

1a) AQ Facility ID No.: 11100077 1b) AQ File No.: _____

2) Facility Name: Otter Tail Ag Enterprises LLC

Minn. R. 7007.0600 describes what a complete permit application must include. Please note that a complete permit application for the modification must be included with this submittal or the application will be deemed incomplete. The following information must be included in your application **if it applies to the modification**. Please complete the following to verify that you have included all the needed information.

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All applications or notifications

☒ CH-CP-01 ☒ CH-CR-01 ☒ CH-00
☒ CH-GI-01 ☒ CH-01 ☒ CH-15
☒ CH-02 ☒ CH-14
☐ CR-03 (when you are requesting confidentiality)

All Applications for Major, Moderate, or Minor Amendments

☒ CH-03 ☒ CH-11
☒ CH-04 ☒ CH-13
☐ CH-04a (existing major sources under NSR)
☒ CH-04b (existing non-major sources under NSR)
☒ CH-05 ☒ CD-01
☒ CH-06 ☒ GI-07
☒ CH-07

Additional Requirements for Some Major Amendments

☒ Limits required because of performance testing or modeling results, if not already incorporated into your permit (photocopies of Minnesota Pollution Control Agency (MPCA) correspondence fulfills this requirement)

☐ GI-09H, to determine if a physical change to or addition of new equipment with add-on control equipment is subject to CAM, and a CAM Submittal (including a CAM Plan), if so indicated by Form GI-09H

☐ EMS-00, if permit is to incorporate Environmental Management System (EMS) provisions

Additional Requirements for Moderate or Minor Amendments

☐ CH-10

NSR = New Source Review

All Applications for Administrative Amendments

☐ CH-08

Contravening Permit Terms

☐ CH-09 ☐ CH-12

Notifications for Changes Not Requiring a Permit

☐ CH-12

Additional Forms Dependent on Change Requested

☐ PAL-01, PAL-02, MI-02c (to request a new PAL under NSR)
☐ GI-02 (to describe changes in process flow)
☐ GI-03 (to describe changes in stack layout)
☐ GI-04 (to describe new, removed, or changed stacks)
☐ GI-05a (to describe new, removed, or changed control equipment)
☐ HE-01/CR-02 (to describe and certify hood efficiency associated with new or changed control equipment **not** collecting through a total enclosure)
☐ GI-05b (to describe new, removed, or changed emissions units)
☐ GI-05c (to describe new, removed, or changed storage tanks)
☐ GI-05d (to describe new, removed, or changed fugitive sources)
☐ HG-01 (for taconite production secondary metal production, fuel combustion for electricity generation or industrial boilers, or incinerators, if there is **any** increase in mercury emissions)

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CH-15

SIP Changes and Permits
Air Quality Permit Program

1a) AQ Facility ID No.: 11100077 1b) AQ File No.: _____

2) Facility Name: Otter Tail Ag Enterprises LLC

Section I

I.1 Does your facility have source specific State Implementation Plan (SIP) conditions contained in a Part 70 permit or a federally enforceable state operating permit **or** has your facility been issued an Administrative Order (Order) to ensure compliance with a national ambient air quality standard (NAAQS)? (This would include permit conditions labeled "Title I condition: SIP for [pollutant] NAAQS"). If your facility is listed in Table 1 below, you have source specific SIP conditions.

☐ Yes. Check all applicable pollutants and continue with Section II.

- ☐ Sulfur Dioxide (SO_2)
- ☐ Particulate matter less than 10 microns (PM_{10})
- ☐ Lead

☒ No. **Stop here**, and submit this form with your application for a permit amendment or operating permit reissuance.

Section II

II.1 Where are the SIP conditions that apply to your facility?

- ☐ In the current operating permit
- ☐ In the Order
- ☐ In both the current operating permit and the Order

II.2 This permit application is for

- ☐ Reissuance of the operating permit
- ☐ An amendment to the current operating permit

Whether you are proposing changes through an application for a facility modification, or if you are submitting a reissuance application and there have been changes at your facility that are not included in the current operating permit or the Order, complete the rest of this form considering those changes as the 'proposed change.' If your facility is subject to the Order, Minnesota Pollution Control Agency (MPCA) will initiate a SIP revision to transfer the Title I conditions from the Order to the Permit.

II.3 Does the proposed change involve equipment or operating parameters that are subject to a Title I SIP condition in your permit or a requirement from your Order?

- ☐ Yes
- ☐ No

II.4 Does the proposed change add an emission unit(s) or stack/vent that will emit the criteria pollutant(s) identified in Section I?

- ☐ Yes
- ☐ No

II.5 Does the proposed change increase the emission rate of the criteria pollutant(s) at any of the existing emission points (emission unit, control equipment or stack/vent)?

- ☐ Yes
- ☐ No

II.6 Does the proposed change increase the overall emission rate of that criteria pollutant at the facility?

- ☐ Yes
- ☐ No

Section III

Review the SIP modeling parameters for your facility. These are usually found in an appendix to your permit or in your Order. For the proposed change at your facility, check all that apply:

- ☐ Addition of new emission point(s) for the criteria pollutant
- ☐ Removal of existing emission point(s) for the criteria pollutant
- ☐ Change in one or more modeled stack/vent heights or diameter
  - ☐ Increase in stack height
  - ☐ Decrease in stack height
  - ☐ Increase in stack diameter
  - ☐ Decrease in stack diameter
- ☐ Change in modeled air flow rate(s)
  - ☐ Increase in air flow rate(s)
  - ☐ Decrease in air flow rate(s)
- ☐ Change in one or more modeled emission rates
  - ☐ Increase in emission rate(s)
  - ☐ Decrease in emission rate(s)
- ☐ Change in location of one or more emission points
- ☐ Change in exit point temperature
  - ☐ Increase in temperature
  - ☐ Decrease in temperature
- ☐ Change in building locations or dimensions
- ☐ Other _____
- ☐ No change to current modeling parameters.

If there are any changes to the modeling parameters, you will need to demonstrate that the plume dispersion characteristics of the criteria pollutant will be equivalent to or better than the dispersion characteristics modeled using the parameters included as noted in the appendix of your permit or in your Order. In many cases you will need to remodel to show attainment with the NAAQS. However, in some cases you may be able to provide a written justification for improved dispersion characteristics.

If you will need to do modeling, it is recommended that you check the MPCA website or contact MPCA staff for guidance on current SIP modeling. SIP modeling requirements may be different than modeling for other programs and may have changed since previous modeling was done for your facility. See the MPCA's on-line SIP and modeling information at http://www.pca.state.mn.us/air/sip.html and http://www.pca.state.mn.us/air/modeling.html for current contact information.

Section IV

Will the proposed change require a SIP revision?

In general, a SIP revision is not required if you are making a change to the facility that does not increase, from any emission point, the emission rate of the criteria pollutant or alter equipment or parameters used as the basis for modeling of the criteria pollutant.

If you answered "Yes" to any of the questions in Section II or have identified changes to the modeling parameters for your facility in Section III, you will likely need a SIP revision for your project. If a SIP revision is required for a modification amendment, you must submit a **major** amendment application. If the proposed change includes an increase in emissions of the criteria pollutant or if it is new construction, the current Title I SIP conditions in your permit or the conditions in your Order for your facility must be followed until the SIP revision is approved by U.S. Environmental Protection Agency (EPA). If the proposed change will reduce emissions or will provide better modeled dispersion characteristics that change may proceed with MPCA and EPA approval.

When a SIP revision is part of your permit reissuance or amendment, approval of the reissuance or modification application will include more steps and take more time than the general process for a permit issuance. The SIP revision includes review and approval of the permit application by MPCA, including public notice of the permit. The SIP revision requires a public notice (which may occur concurrently with the permit notice of the draft/proposed permit); EPA generally does a preliminary review of the SIP revision at this time. There is an opportunity for interested parties to request a public meeting during the public notice period. After MPCA's public notice period ends for the draft/proposed permit, MPCA submits the SIP revision to EPA for a formal review and approval. Final approval of the SIP revision occurs when EPA publishes the revision as a final rule in the federal register.

Minnesota Pollution Control Agency
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GI-07

Facility Emissions Summary

Air Quality Permit Program

1a) AQ Facility ID No.: 11100077 1b) AQ File No.:

2) Facility Name: Otter Tail Ag Enterprises LLC

3a)	3b)	3c) CAS#:				CAS#:				CAS#:			
Emission	Emission	3d) Pollutant Name:	VOC			Pollutant Name:				Pollutant Name:			
Source Type	Source ID No.	3e) Potential			3f) Actual	Potential			Actual	Potential			Actual
		Lbs per Hr	Unrestricted tpy	Limited tpy	Tons per yr	Lbs per Hr	Unrestricted tpy	Limited tpy	Tons per yr	Lbs per Hr	Unrestricted tpy	Limited tpy	Tons per yr
SV	020			0.03									
SV	021			0.15									
SV	022			2.12									
SV	023			2.12									
SV	024			18.92									
SV	026			42.00									
SV	027			7.23									
SV	028			12.66									
FS	005			8.43									

4)	Potential			Actual	Potential			Actual	Potential			Actual
Total		Unrestricted	Limited	Tons/year		Unrestricted	Limited	Tons/year		Unrestricted	Limited	Tons/year
Facility												

GPOT-0004516

Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

GI-07

Facility Emissions Summary

Air Quality Permit Program

1a) AQ Facility ID No.: 11100077 1b) AQ File No.:

2) Facility Name: Otter Tail Ag Enterprises LLC

3a)	3b)	3c) CAS#:				CAS#:				CAS#:			
Emission	Emission	3d) Pollutant Name:	VOC			Pollutant Name:				Pollutant Name:			
Source Type	Source ID No.	3e) Potential			3f) Actual	Potential			Actual	Potential			Actual
		Lbs per Hr	Unrestricted tpy	Limited tpy	Tons per yr	Lbs per Hr	Unrestricted tpy	Limited tpy	Tons per yr	Lbs per Hr	Unrestricted tpy	Limited tpy	Tons per yr
TK	001			0.16									
TK	002			0.16									
TK	003			0.69									
TK	004			0.15									
TK	005			0.15									

4)	Potential			Actual	Potential			Actual	Potential			Actual
Total		Unrestricted	Limited	Tons/year		Unrestricted	Limited	Tons/year		Unrestricted	Limited	Tons/year
Facility			95.0									

GPOT-0004517

Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

CD-01

Compliance Plan
Air Quality Permit Program

Facility Information

1) AQ Facility ID No.: 11100077

2) Facility Name: Otter Tail Ag Enterprises LLC

Submit a separate form for each Emission Unit/Tank/Fugitive Source or Group of Sources as necessary.
Refer to instructions starting on page 8.

3a) Emission Unit /Tank/Fugitive Source Identification Number(s): EU 033-038

Associated Control Equipment Number(s): CE 027

Associated Monitoring System(s) (CEMS or COMS):

Associated Stack/Vent Number(s): SV 026

OR

3b) Group Description:

Emission Units/Tanks/Fugitive Sources Included in Group:

Control Equipment Included in Group:

Monitoring Systems (CEMS or COMS) Included in Group:

Stack/Vents Included in Group:

CEMS = continuous emission monitoring system; COMS = continuous opacity monitoring system

Use **Section A** of this form when you are applying for the first time for a new individual operating permit (federal or state). This includes:

- permits for construction of new facilities
- permits for existing facilities that are switching to an individual permit from a Registration Permit, Capped Permit, or General Permit
- permits for existing facilities subject to permitting for the first time

Use **Section B** of this form when you are applying for an amendment to an existing individual operating permit (federal or state).

If you have units subject to the Clean Air Interstate Rule (CAIR), you will also need to use **Form CD-04.**

Use **Form CD-05** to identify operating parameters of control equipment when you are applying for the first time for an individual operating permit, or when applying for an amendment to an existing individual operating permit.

Section A - Compliance Plan for a New Individual Operating Permit

4) National Emission Standards for Hazardous Air Pollutants (NESHAP) for Source Categories (40 CFR Part 63)

4a) On Form GI-09A, did you identify a Part 63 NESHAP that is or will be applicable to the item or group identified in Question 3a or 3b (of this form)?

☐ No. Go on to Question 4b.

☐ Yes. Attach a copy of each applicable Part 63 NESHAP. Highlight all applicable requirements of the entire subpart.

☐ Attached ☐ Not attached

4b) On Form GI-09A, did you propose limits on the item or group identified in Question 3a or 3b (of this form) so that the entire facility is not a major source of HAPs?

☐ No. Go on to Question 4c.

☐ Yes. Below, list the limit(s) you proposed, providing the proposed compliance demonstration.

11b) Does the item or group identified in Question 3a or 3b require limits based on the results of an EAW or AERA that was performed?

☐ No.

☐ Yes. ☐ AERA and/or ☐ EAW

List the limit(s) below, along with the proposed compliance demonstration.

Proposed Limit	Proposed Compliance Demonstration

12) Is there pollution control equipment associated with the item or group identified?

☐ No.

☐ Yes. Complete Form CD-05 for each associated control device.

Section B - Compliance Plan for an Amendment to an Existing Individual Operating Permit

13) To the extent that your proposed permit amendment consists of edits to existing permit language, you should attach to this form a copy of the relevant page(s) of the existing permit with proposed changes clearly marked.

Check one or both of the following statements, as applicable:

☒ All or part of the proposed permit changes for the item or group identified in Question 3a or 3b is shown by edits to the existing permit language, a copy of which is attached to this form.

☐ Some of the proposed permit changes for the item or group identified in Question 3a or 3b cannot be shown by simply marking up existing permit language, so I am answering the questions below.

For any proposed changes that cannot be easily and clearly shown by submitting marked-up pages from your existing permit, answer the questions that follow.

14) National Emission standards for Hazardous Air Pollutant Sources (NESHAPS) for Source Categories (40 CFR Part 63)

14a) On CH-07, did you identify a newly applicable Part 63 NESHAP for the item or group identified in Question 3a or 3b (of this form)?

☐ No. Go on to Question 14b.

☐ Yes. Attach a copy of each newly applicable Part 63 NESHAP. Highlight all applicable requirements of the entire subpart. ☐ Attached ☐ Not attached

14b) On Form CH-07, did you propose limits on the item or group identified in Question 3a or 3b (of this form) so that the entire facility is not a major source of HAPs?

☐ No. Go on to Question 14c.

☐ Yes. Below, list the limit(s) you proposed, providing the proposed compliance demonstration.

Proposed Limit	Proposed Compliance Demonstration

14c) On Form CH-07, did you identify that a case-by-case determination of Maximum Achievable Control Technology (MACT) is required for the item or group identified in Question 3a or 3b (of this form)?

☐ No. Go on to Question 15.

☐ Yes. Attach your case-by-case proposal, including proposed compliance demonstration.

☐ Attached ☐ Not attached

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: Otter Tail Ag Enterprises LLC

Permit Number: 11100077 - 002

Subject Item: **SV 026 CO2 Scrubber (CE 027)**

Associated Items: EU 033 Yeast Tank

EU 034 Fermenter 1

EU 035 Fermenter 2

EU 036 Fermenter 3

EU 037 Fermenter 4

EU 038 Beerwell

What to do	Why to do it
EMISSION LIMITS	hdr
Volatile Organic Compounds: less than or equal to ~~5.09 lbs/hour~~ 9.59 lbs/hour	Title I Condition: To avoid classification as major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200
POLLUTION CONTROL REQUIREMENTS	hdr
Volatile Organic Compounds: greater than or equal to 95 percent control efficiency	Title I Condition: To avoid classification as a major source under 40 CFR Section 52.21 and Minn. R. 7007.3000; To avoid classification as major source under 40 CFR Section 70.2 and Minn. R. 7007.0200; Minn. R. 7007.0800, subp. 2 and 14
Pressure Drop: greater than or equal to 2.0 inches of water column and less than or equal to 6.0 inches of water column or as determined during compliance testing.	Title I Condition: To avoid classification as major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200
Water flow rate: greater than or equal to 55 gallons/minute or as determined during compliance testing.	Title I Condition: To avoid classification as major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200
MONITORING REQUIREMENTS	hdr
The Permittee shall record the Pressure Drop and Water Flow Rate of each scrubber once each day of operation.	Title I Condition: To avoid classification as major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200
The Permittee shall operate and maintain the scrubber at all times that any emission unit controlled by the scrubber is in operation. The Permittee shall document periods of non-operation of the control equipment.	Title I Condition: To avoid classification as a major source under 40 CFR Section 52.21 and Minn. R. 7007.3000; To avoid classification as major source under 40 CFR Section 70.2 and Minn. R. 7007.0200; Minn. R. 7007.0800, subp. 2 and 14.
The Permittee shall operate and maintain the scrubber in accordance with the control equipment manufacturer's specifications and/or in accordance with Operation and Maintenance (O & M) Plan. The Permittee shall keep copies of the O & M Plan available onsite for use by staff and MPCA staff.	Minn. R. 7007.0800, subp. 14.
Calibrate gauges annually, or as often as required by manufacturing specifications and maitain a written record of the calibration and any action resulting from the calibration.	Minn. R. 7007.0800, subp. 2 and subp. 14.
Monitoring Equipment: The Permittee shall install and maintain the necessary monitoring equipment for measuring and recording pressure drop and water flow rate as required by this permit. The monitoring equipment must be installed, in use, and properly maintained when the monitored scrubber is in operation.	Minn. R. 7007.0800, subp. 4.

Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

CD-01

Compliance Plan
Air Quality Permit Program

Facility Information

1) AQ Facility ID No.: 11100077

2) Facility Name: Otter Tail Ag Enterprises LLC

Submit a separate form for each Emission Unit/Tank/Fugitive Source or Group of Sources as necessary.
Refer to instructions starting on page 8.

3a) Emission Unit /Tank/Fugitive Source Identification Number(s): EU 039-049

Associated Control Equipment Number(s): CE 028

Associated Monitoring System(s) (CEMS or COMS):

Associated Stack/Vent Number(s): SV 027

OR

3b) Group Description:

Emission Units/Tanks/Fugitive Sources Included in Group:

Control Equipment Included in Group:

Monitoring Systems (CEMS or COMS) Included in Group:

Stack/Vents Included in Group:

CEMS = continuous emission monitoring system; COMS = continuous opacity monitoring system

Use **Section A** of this form when you are applying for the first time for a new individual operating permit (federal or state). This includes:

- permits for construction of new facilities
- permits for existing facilities that are switching to an individual permit from a Registration Permit, Capped Permit, or General Permit
- permits for existing facilities subject to permitting for the first time

Use **Section B** of this form when you are applying for an amendment to an existing individual operating permit (federal or state).

If you have units subject to the Clean Air Interstate Rule (CAIR), you will also need to use **Form CD-04.**

Use **Form CD-05** to identify operating parameters of control equipment when you are applying for the first time for an individual operating permit, or when applying for an amendment to an existing individual operating permit.

Section A - Compliance Plan for a New Individual Operating Permit

4) National Emission Standards for Hazardous Air Pollutants (NESHAP) for Source Categories (40 CFR Part 63)

4a) On Form GI-09A, did you identify a Part 63 NESHAP that is or will be applicable to the item or group identified in Question 3a or 3b (of this form)?

☐ No. Go on to Question 4b.

☐ Yes. Attach a copy of each applicable Part 63 NESHAP. Highlight all applicable requirements of the entire subpart.

☐ Attached ☐ Not attached

4b) On Form GI-09A, did you propose limits on the item or group identified in Question 3a or 3b (of this form) so that the entire facility is not a major source of HAPs?

☐ No. Go on to Question 4c.

☐ Yes. Below, list the limit(s) you proposed, providing the proposed compliance demonstration.

11b) Does the item or group identified in Question 3a or 3b require limits based on the results of an EAW or AERA that was performed?

☐ No.

☐ Yes. ☐ AERA and/or ☐ EAW

List the limit(s) below, along with the proposed compliance demonstration.

Proposed Limit	Proposed Compliance Demonstration

12) Is there pollution control equipment associated with the item or group identified?

☐ No.

☐ Yes. Complete Form CD-05 for each associated control device.

Section B - Compliance Plan for an Amendment to an Existing Individual Operating Permit

13) To the extent that your proposed permit amendment consists of edits to existing permit language, you should attach to this form a copy of the relevant page(s) of the existing permit with proposed changes clearly marked.

Check one or both of the following statements, as applicable:

☒ All or part of the proposed permit changes for the item or group identified in Question 3a or 3b is shown by edits to the existing permit language, a copy of which is attached to this form.

☐ Some of the proposed permit changes for the item or group identified in Question 3a or 3b cannot be shown by simply marking up existing permit language, so I am answering the questions below.

For any proposed changes that cannot be easily and clearly shown by submitting marked-up pages from your existing permit, answer the questions that follow.

14) National Emission standards for Hazardous Air Pollutant Sources (NESHAPS) for Source Categories (40 CFR Part 63)

14a) On CH-07, did you identify a newly applicable Part 63 NESHAP for the item or group identified in Question 3a or 3b (of this form)?

☐ No. Go on to Question 14b.

☐ Yes. Attach a copy of each newly applicable Part 63 NESHAP. Highlight all applicable requirements of the entire subpart. ☐ Attached ☐ Not attached

14b) On Form CH-07, did you propose limits on the item or group identified in Question 3a or 3b (of this form) so that the entire facility is not a major source of HAPs?

☐ No. Go on to Question 14c.

☐ Yes. Below, list the limit(s) you proposed, providing the proposed compliance demonstration.

Proposed Limit	Proposed Compliance Demonstration

14c) On Form CH-07, did you identify that a case-by-case determination of Maximum Achievable Control Technology (MACT) is required for the item or group identified in Question 3a or 3b (of this form)?

☐ No. Go on to Question 15.

☐ Yes. Attach your case-by-case proposal, including proposed compliance demonstration.

☐ Attached ☐ Not attached

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: Otter Tail Ag Enterprises LLC

Permit Number: 11100077 - 002

Subject Item: **SV 027 Vent Gas Scrubber (CE 028)**

Associated Items: EU 039 Liquefaction Tank

EU 040 Beer Stripper

EU 041 Side Stripper

EU 042 Rectifier

EU 043 Molecular Sieve

EU 044 Evaporator

EU 045 Centrifuge 1

EU 046 Centrifuge 2

EU 047 Centrifuge 3

EU 048 Centrifuge 4

EU 049 Centrate Tank

What to do	Why to do it
EMISSION LIMITS	hdr
Volatile Organic Compounds: less than or equal to ~~1.15 lbs/hour~~ 1.65 lbs/hour	Title I Condition: To avoid classification as major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200
POLLUTION CONTROL REQUIREMENTS	hdr
Volatile Organic Compounds: greater than or equal to 95 percent control efficiency	Title I Condition: To avoid classification as a major source and modification under 40 CFR Section 52.21 and Minn. R. 7007.3000; To avoid classification as major source under 40 CFR Section 70.2 and Minn. R. 7007.0200; Minn. R. 7007.0800, subp. 2 and 14
Pressure Drop: greater than or equal to 2.0 inches of water column and less than or equal to 6.0 inches of water column or as determined during compliance testing.	Title I Condition: To avoid classification as major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200
Water flow rate: greater than or equal to 6 gallons/minute or as determined during compliance testing.	Title I Condition: To avoid classification as major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200
MONITORING REQUIREMENTS	hdr
The Permittee shall record the Pressure Drop and Water Flow Rate of each scrubber once each day of operation.	Title I Condition: To avoid classification as major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200
The Permittee shall operate and maintain the scrubber at all times that any emission unit controlled by the scrubber is in operation. The Permittee shall document periods of non-operation of the control equipment.	Title I Condition: To avoid classification as a major source under 40 CFR Section 52.21 and Minn. R. 7007.3000; To avoid classification as major source under 40 CFR Section 70.2 and Minn. R. 7007.0200; Minn. R. 7007.0800, subp. 2 and 14.
The Permittee shall operate and maintain the scrubber in accordance with the control equipment manufacturer's specifications and/or in accordance with Operation and Maintenance (O & M) Plan. The Permittee shall keep copies of the O & M Plan available onsite for use by staff and MPCA staff.	Minn. R. 7007.0800, subp. 14.
Calibrate gauges annually, or as often as required by manufacturing specifications and maitain a written record of the calibration and any action resulting from the calibration.	Minn. R. 7007.0800, subp. 2 and subp. 14.
Monitoring Equipment: The Permittee shall install and maintain the necessary monitoring equipment for measuring and recording pressure drop and water flow rate as required by this permit. The monitoring equipment must be installed, in use, and properly maintained when the monitored scrubber is in operation.	Minn. R. 7007.0800, subp. 4.

Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

CD-01

Compliance Plan
Air Quality Permit Program

Facility Information

1) AQ Facility ID No.: 11100077

2) Facility Name: Otter Tail Ag Enterprises LLC

Submit a separate form for each Emission Unit/Tank/Fugitive Source or Group of Sources as necessary.
Refer to instructions starting on page 8.

3a) Emission Unit /Tank/Fugitive Source Identification Number(s): EU 050-51

Associated Control Equipment Number(s): CE 030

Associated Monitoring System(s) (CEMS or COMS):

Associated Stack/Vent Number(s): SV 028

OR

3b) Group Description:

Emission Units/Tanks/Fugitive Sources Included in Group:

Control Equipment Included in Group:

Monitoring Systems (CEMS or COMS) Included in Group:

Stack/Vents Included in Group:

CEMS = continuous emission monitoring system; COMS = continuous opacity monitoring system

Use **Section A** of this form when you are applying for the first time for a new individual operating permit (federal or state). This includes:

- permits for construction of new facilities
- permits for existing facilities that are switching to an individual permit from a Registration Permit, Capped Permit, or General Permit
- permits for existing facilities subject to permitting for the first time

Use **Section B** of this form when you are applying for an amendment to an existing individual operating permit (federal or state).

If you have units subject to the Clean Air Interstate Rule (CAIR), you will also need to use **Form CD-04.**

Use **Form CD-05** to identify operating parameters of control equipment when you are applying for the first time for an individual operating permit, or when applying for an amendment to an existing individual operating permit.

Section A - Compliance Plan for a New Individual Operating Permit

4) National Emission Standards for Hazardous Air Pollutants (NESHAP) for Source Categories (40 CFR Part 63)

4a) On Form GI-09A, did you identify a Part 63 NESHAP that is or will be applicable to the item or group identified in Question 3a or 3b (of this form)?

☐ No. Go on to Question 4b.

☐ Yes. Attach a copy of each applicable Part 63 NESHAP. Highlight all applicable requirements of the entire subpart.

☐ Attached ☐ Not attached

4b) On Form GI-09A, did you propose limits on the item or group identified in Question 3a or 3b (of this form) so that the entire facility is not a major source of HAPs?

☐ No. Go on to Question 4c.

☐ Yes. Below, list the limit(s) you proposed, providing the proposed compliance demonstration.

11b) Does the item or group identified in Question 3a or 3b require limits based on the results of an EAW or AERA that was performed?

☐ No.

☐ Yes. ☐ AERA and/or ☐ EAW

List the limit(s) below, along with the proposed compliance demonstration.

Proposed Limit	Proposed Compliance Demonstration

12) Is there pollution control equipment associated with the item or group identified?

☐ No.

☐ Yes. Complete Form CD-05 for each associated control device.

Section B - Compliance Plan for an Amendment to an Existing Individual Operating Permit

13) To the extent that your proposed permit amendment consists of edits to existing permit language, you should attach to this form a copy of the relevant page(s) of the existing permit with proposed changes clearly marked.

Check one or both of the following statements, as applicable:

☒ All or part of the proposed permit changes for the item or group identified in Question 3a or 3b is shown by edits to the existing permit language, a copy of which is attached to this form.

☐ Some of the proposed permit changes for the item or group identified in Question 3a or 3b cannot be shown by simply marking up existing permit language, so I am answering the questions below.

For any proposed changes that cannot be easily and clearly shown by submitting marked-up pages from your existing permit, answer the questions that follow.

14) National Emission standards for Hazardous Air Pollutant Sources (NESHAPS) for Source Categories (40 CFR Part 63)

14a) On CH-07, did you identify a newly applicable Part 63 NESHAP for the item or group identified in Question 3a or 3b (of this form)?

☐ No. Go on to Question 14b.

☐ Yes. Attach a copy of each newly applicable Part 63 NESHAP. Highlight all applicable requirements of the entire subpart. ☐ Attached ☐ Not attached

14b) On Form CH-07, did you propose limits on the item or group identified in Question 3a or 3b (of this form) so that the entire facility is not a major source of HAPs?

☐ No. Go on to Question 14c.

☐ Yes. Below, list the limit(s) you proposed, providing the proposed compliance demonstration.

Proposed Limit	Proposed Compliance Demonstration

14c) On Form CH-07, did you identify that a case-by-case determination of Maximum Achievable Control Technology (MACT) is required for the item or group identified in Question 3a or 3b (of this form)?

☐ No. Go on to Question 15.

☐ Yes. Attach your case-by-case proposal, including proposed compliance demonstration.

☐ Attached ☐ Not attached

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: Otter Tail Ag Enterprises LLC

Permit Number: 11100077 - 002

Subject Item: **CE 030 Thermal Oxidizer**

Associated Items: EU 050 DDGS Dryer

EU 051 DDGS Cooler

What to do	Why to do it
EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 5.15 lbs/hour using 3-hour Rolling Average	Title I Condition: To avoid classification as a major source under 40 CFR Section 52.21 and Minn. R. 7007.3000; To avoid classification as major source under 40 CFR Section 70.2 and Minn. R. 7007.0200; Minn. R. 7007.0800, subp. 2 and 14
Nitrogen Oxides: less than or equal to 11.32 lbs/hour using 3-hour Rolling Average	Title I Condition: To avoid classification as a major source under 40 CFR Section 52.21 and Minn. R. 7007.3000; To avoid classification as major source under 40 CFR Section 70.2 and Minn. R. 7007.0200; Minn. R. 7007.0800, subp. 2 and 14
Volatile Organic Compounds: less than or equal to ~~7.89 lbs/hour~~ 2.89 lbs/hour using 3-hour Rolling Average	Title I Condition: To avoid classification as a major source under 40 CFR Section 52.21 and Minn. R. 7007.3000; To avoid classification as major source under 40 CFR Section 70.2 and Minn. R. 7007.0200; Minn. R. 7007.0800, subp. 2 and 14
Carbon Monoxide: less than or equal to 12.91 lbs/hour using 3-hour Rolling Average	Title I Condition: To avoid classification as a major source under 40 CFR Section 52.21 and Minn. R. 7007.3000; To avoid classification as major source under 40 CFR Section 70.2 and Minn. R. 7007.0200; Minn. R. 7007.0800, subp. 2 and 14
OPERATIONAL REQUIREMENTS	hdr
Volatile Organic Compounds: greater than or equal to 95 percent destruction efficiency . The Permittee shall operate & maintain the Thermal Oxidizer such that it achieves no less than 95 percent destruction efficiency for VOC.	Title I Condition: To avoid classification as a major source under 40 CFR Section 52.21 and Minn. R. 7007.3000; To avoid classification as major source under 40 CFR Section 70.2 and Minn. R. 7007.0200; Minn. R. 7007.0800, subp. 2 and 14
Carbon Monoxide: greater than or equal to 90 percent destruction efficiency . The Permittee shall operate & maintain the Thermal Oxidizer such that it achieves no less than 90 percent destruction efficiency for CO.	Title I Condition: To avoid classification as a major source under 40 CFR Section 52.21 and Minn. R. 7007.3000; To avoid classification as major source under 40 CFR Section 70.2 and Minn. R. 7007.0200; Minn. R. 7007.0800, subp. 2 and 14
Temperature: greater than or equal to 1400 degrees F using 3-hour Rolling Average as a 3-hour rolling average at the combustion chamber outlet, unless a new limit is set pursuant to Minn. R. 7017.2025, subp. 3 based on the values recorded during the most recent MPCA-approved performance test where compliance was demonstrated. The new limit shall be implemented upon receipt of the Notice of Compliance letter granting preliminary approval. The limit is final upon issuance of a permit amendment incorporating the change. If the 3-hour rolling average temperature is below the minimum temperature limit, the VOC used during that time shall be considered uncontrolled until the average temperature is above the minimum temperature limit. This shall be reported as a deviation.	Title I Condition: To avoid classification as a major source under 40 CFR Section 52.21 and Minn. R. 7007.3000; To avoid classification as major source under 40 CFR Section 70.2 and Minn. R. 7007.0200; Minn. R. 7007.0800, subp. 2 and 14
The Permittee shall operate and maintain the thermal oxidizer any time that any process equipment controlled by the thermal oxidizer is in operation. The Permittee shall document periods of non-operation of the control equipment.	Title I Condition: To avoid classification as a major source under 40 CFR Section 52.21 and Minn. R. 7007.3000; To avoid classification as major source under 40 CFR Section 70.2 and Minn. R. 7007.0200; Minn. R. 7007.0800, subp. 2 and 14
Corrective Actions: If the temperature is below the minimum specified by this permit or if the thermal oxidizer or any of its components are found during the inspections to need repair, the Permittee shall take corrective action as soon as possible. Corrective actions shall return the temperature to at least the permitted minimum and/or include completion of necessary repairs identified during the inspection, as applicable. Corrective actions include, but are not limited to, those outlined in the O & M Plan for the thermal oxidizer. The Permittee shall keep a record of the type and date of any corrective action taken.	Minn. R. 7007.0800, subp. 4, 5, and 14
The Permittee shall operate and maintain the thermal oxidizer in accordance with the Operation and Maintenance (O & M) Plan. The Permittee shall keep copies of the O & M Plan available onsite for use by staff and MPCA staff.	Minn. R. 7007.0800, subp. 14
MONITORING/RECORDKEEPING	hdr

APPENDIX A

REVISED EMISSION CALCULATIONS

Otter Tail Ag Enterprises, LLC

Limited Potential to Emit Emissions @ 65.0 million gallons ethanol production

Stack/ Vent ID	Control Eq. ID	Emission Unit ID	Emission Sources Associated with Ethanol Operations	Criteria Pollutants (Limited Emissions) PM (tpy)	PM10 (tpy)	PM2.5 (tpy)	SO2 (tpy)	NOx (tpy)	VOC (tpy)	CO (tpy)	HAP Emissions HAP (Single) Acetaldehyde (tpy)	HAP (Total) (tpy)
---	---	EU001	Corn Dump Pit/Auger#1	CE001	CE001	CE001	---	---	---	---	---	---
---	---	EU002	Corn Conveyor#1	CE001	CE001	CE001	---	---	---	---	---	---
---	---	EU003	Corn Elevator#1	CE001	CE001	CE001	---	---	---	---	---	---
---	---	EU004	Corn Dump Pit/Auger#2 [FN1]	CE001	CE001	CE001	---	---	---	---	---	---
---	---	EU005	Corn Conveyor#2	CE001	CE001	CE001	---	---	---	---	---	---
---	---	EU006	Corn Elevator#2	CE001	CE001	CE001	---	---	---	---	---	---
---	---	EU007	Transfer Conveyor#1	CE001	CE001	CE001	---	---	---	---	---	---
SV001	CE001	---	Grain Receiving Baghouse	13.89	13.89	13.89	---	---	---	---	---	---
---	---	EU008	Scalper	CE008	CE008	CE008	---	---	---	---	---	---
---	---	EU009	Reclaim System	CE008	CE008	CE008	---	---	---	---	---	---
---	---	EU010	Grinder Surge Bin	CE008	CE008	CE008	---	---	---	---	---	---
---	---	EU011	Hammermill#1	CE008	CE008	CE008	---	---	---	---	---	---
---	---	EU012	Hammermill#2	CE008	CE008	CE008	---	---	---	---	---	---
---	---	EU055	Hammermill #3	CE008	CE008	CE008						
SV008	CE008	---	Hammermill Baghouse	8.94	8.94	8.94	---	---	---	---	---	---
---	---	EU013	DDGS Storage Reclaim	CE011	CE011	CE011	---	---	---	---	---	---
---	---	EU014	Bulkweigher	CE011	CE011	CE011						
---	---	EU015	DDGS Conveyor	CE011	CE011	CE011	---	---	---	---	---	---
---	---	EU016	DDGS Load Spout	CE011	CE011	CE011	---	---	---	---	---	---
SV011	CE011	---	DDGS Loadout Baghouse	1.80	1.80	1.80	---	---	---	---	---	---
SV012	CE012	EU017	Cooling Tower Cell#1	3.65	3.65	3.65	---	---	---	---	---	---
SV013	CE013	EU018	Cooling Tower Cell#2	3.65	3.65	3.65	---	---	---	---	---	---
SV014	CE014	EU019	Cooling Tower Cell#3	3.65	3.65	3.65	---	---	---	---	---	---
FS001	(CE001)	(EU001, EU004)	Grain Receiving Fug.	2.38	0.53	0.09	---	---	---	---	---	---
FS002	(CE011)	(EU016)	DDGS Loadout Fug.	0.18	0.04	0.04	---	---	---	---	---	---
FS003	(CE011)	(EU013)	DDGS Storage Fug.	0.53	0.13	0.13	---	---	---	---	---	---
FS004	CE020	EU025	Truck Traffic	16.51	3.22	0.48	---	---	---	---	---	---
SV020	CE021	EU026	Fire Pump (test only)	0.20	0.20	0.20	0.11	1.03	0.03	0.05	neg	neg
SV021A/B	CE022	EU027	Emergency Generator (250hrs)	0.05	0.05	0.05	0.00	3.02	0.15	0.20	neg	neg
SV022	CE023	EU028	Boiler#1	2.93	2.93	2.93	0.23	20.24	2.12	18.21	neg	0.73
SV023	CE024	EU029	Boiler#2	2.93	2.93	2.93	0.23	20.24	2.12	18.21	neg	0.73
SV024	CE025	EU030	Dedicated Fleet EtOH Loadout	(FN2)	(FN2)	(FN2)	(FN2)	(FN2)	18.92	(FN2)	neg	0.40
---	---	EU031	Non-dedicated Fleet EtOH Loadout	---	---	---	---	---	CE026	---	CE026	CE026
SV025	CE026	EU032	Loadout Flare	0.01	0.01	0.01	neg	0.57	(FN2)	1.34	(FN2)	(FN2)

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---	---	EU033	Yeast Tank	---	---	---	---	---	CE027	---	CE027	CE027
---	---	EU034	Fermenter#1	---	---	---	---	---	CE027	---	CE027	CE027
---	---	EU035	Fermenter#2	---	---	---	---	---	CE027	---	CE027	CE027
---	---	EU036	Fermenter#3	---	---	---	---	---	CE027	---	CE027	CE027
---	---	EU037	Fermenter#4	---	---	---	---	---	CE027	---	CE027	CE027
---	---	EU038	Beerwell	---	---	---	---	---	CE027	---	CE027	CE027
SV026	CE027	---	CO2 Scrubber	---	---	---	---	---	42.00	---	6.20	6.37
---	---	EU039	Liquefaction Tank	---	---	---	---	---	CE028	---	CE028	CE028
---	---	EU040	Beer Stripper	---	---	---	---	---	CE028	---	CE028	CE028
---	---	EU041	Side Stripper	---	---	---	---	---	CE028	---	CE028	CE028
---	---	EU042	Rectifier	---	---	---	---	---	CE028	---	CE028	CE028
---	---	EU043	Molecular Sieve	---	---	---	---	---	CE028	---	CE028	CE028
---	---	EU044	Evaporator	---	---	---	---	---	CE028	---	CE028	CE028
---	---	EU045	Centrifuge#1	---	---	---	---	---	CE028	---	CE028	CE028
---	---	EU046	Centrifuge#2	---	---	---	---	---	CE028	---	CE028	CE028
---	---	EU047	Centrifuge#3	---	---	---	---	---	CE028	---	CE028	CE028
---	---	EU048	Centrifuge#4	---	---	---	---	---	CE028	---	CE028	CE028
---	---	EU049	Centrate Tank	---	---	---	---	---	CE028	---	CE028	CE028
SV027	CE028	---	Vent Gas Scrubber	---	---	---	---	---	7.23	---	0.28	0.30
---	CE029	EU050	DDGS Drver	CE030	CE030	CE030	---	---	CE030	CE030	CE030	CE030
---	---	EU051	DDGS Cooler	CE030	CE030	CE030	---	---	CE030	CE030	CE030	CE030
SV028	CE030	EU052	RTO	22.57	22.57	22.57	13.13	49.56	12.66	56.54	2.50	3.85
FS005	CE031	EU053	Equipment Leaks	---	---	---	---	---	8.43	---	---	---
FS006	CE032	EU054	Wetcake (AOS)	---	---	---	---	---	(FN3)	---	(FN3)	(FN3)
SV029	CE033	TK001	200 Proof Tank	---	---	---	---	---	0.16	---	neg	neg
SV030	CE034	TK002	200 Proof Tank	---	---	---	---	---	0.16	---	neg	neg
SV031	CE035	TK003	Denaturant Storage Tank	---	---	---	---	---	0.69	---	neg	0.0131
SV032	CE036	TK004	Denatured Ethanol Tank#1	---	---	---	---	---	0.15	---	neg	0.0007
SV033	CE037	TK005	Denatured Ethanol Tank#2	---	---	---	---	---	0.15	---	neg	0.0007
			TOTALS	83.9	68.2	65.0	13.7	94.7	95.0	94.6	9.0	12.4
			Total Facility Emission Originally Permitted	83.9	68.2	65.0	13.7	94.7	95.0	94.6	9.0	12.4
			Emission Change due to the Modification	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(FN1) Corn Dump Pit #2 has two openings (one for truck and one for rail) grain may be removed from only one opening at a time due the physical limitations of the conveyor. There are less emissions associated with rail receiving than with truck receiving therefore the potential emissions remain based on truck receiving only.

(FN2) Product (denatured Ethanol) occurs to either of two scenarios. Loading to a dedicated fleet (carry only denatured ethanol) or loading to a non-dedicated fleet (may have previously carried gasoline. Dedicated Fleet loadout is not flared. Non-dedicated loadout is flared. Potential to emit is based on worst case emissions from either scenario. Dedicated fleet loadout is worst case for VOC, Non-dedicated is worst case for PM, NOx and CO due to use of a flare.

(FN3) FS006 Wetcake (AOS) is an alternate operating scenario that is not worst case for emissions therefore does not contribute to facility Potential to Emit.

Otter Tail Ag Enterprises, LLC
CO2 Scrubber Emissions

SV026 **CE027** **---** **CO2 Scrubber**

CO2 Scrubber Inlet (uncontrolled) Concentration Supporting Data

	Average	Std. Dev	n	99% Confidence (high) Value	99% Confidence (low) Value	RANGE BETWEEN CONFIDENCE VALUES	Number of Rejected Values
VOC as Carbon (ppm,d)	25,861	8,202	6	34,486	17,237	17,249	0

CO2 Scrubber (controlled) Emissions Supporting Data

	Average (ppm,d)	Std. Dev	n	99% Confidence (high) Value	99% Confidence (low) Value	RANGE BETWEEN CONFIDENCE VALUES	Number of Rejected Values
VOC as Carbon (ppm,d)	**103.73**	37.33	7	**140.08**	**67.39**	72.68	3
Ethanol (ppm,d)	**5.60**	5.26	7	**10.72**	**0.48**	NA	3
Ethyl Acetate (ppm,d)	**7.83**	4.31	5	**12.79**	**2.86**	9.93	2
Formaldehyde (ppm,d)	**0.24**	0.16	10	**0.37**	**0.11**	0.26	0
Methanol (ppm,d)	**0.24**	0.17	9	**0.38**	**0.09**	0.29	0
Acetaldehyde (ppm,d)	**9.87**	11.42	8	**20.27**	**< zero**	---	2
Acetic Acid (ppm,d)	**2.81**	3.88	10	**5.96**	**< zero**	NA	0
Acrolein (ND) (ppm,d)	**0.08**	0.03	10	**0.10**	**0.06**	0.04	0
2-Furaldehyde (ppm,d)	**0.07**	0.04	6	**0.11**	**0.03**	0.08	0
Lactic Acid (ND) (ppm,d)	**0.54**	0.18	8	**0.71**	**0.38**	0.33	0
Formic Acid (ND) (ppm,d)	**1.86**	0.60	4	**2.62**	**1.09**	1.54	0
Iso-amyl Alcohol (ppm,d)	**2.49**	2.87	3	**6.76**	**< zero**	---	0
Mw/Cw ratio	**1.98**	0.19	10	**2.13**	**1.83**	0.30	0
(dscfm / MMGal/yr EtOH)	**108.24**	23.17	7	**130.80**	**85.68**	45.12	1
%reduction	**99.60%**	---	---	**99.80%**	**99.19%**	0.62%	NA

CO2 Scrubber Uncontrolled Potential Emissions

gallons of EtOH produced	65.0	MMGal/yr
Noncondensible factor	108.24	(dscfm / MMGal/yr EtOH)
Volume non-condensible gas	7,036	dscfm
Mw/Cw ratio	1.98	mass VOC/mass Carbon
Statistical Confidence Interval Above Data	AVERAGE	

	Uncontrolled Estimate (ppm,d)	MW	lb/hr	tpy
VOC (as Carbon)	25861.10	12	339.97	1489.07
VOC, (scaled as VOC)	---	---	672.14	**2943.96**

"Uncontrolled Potential" Calculations

GPOT-0004530

Otter Tail Ag Enterprises, LLC
CO2 Scrubber Emissions

CO2 Scrubber Projected Actual Emissions

gallons of EtOH produced	65.0	MMGal/yr
Noncondensible factor	108.24	(dscfm / MMGal/yr EtOH)
Volume non-condensible gas	7,036	dscfm
Mw/Cw ratio	1.98	mass VOC/mass Carbon
Statistical Confidence Interval Above Data	AVERAGE	

	Projected Actuals Estimate (ppm,d)	MW	lb/hr	tpy	HAP?	Has IHB?
VOC (as Carbon)	103.73	12.00	1.36	5.97		
VOC, (scaled as VOC)	---	---	**2.70**	**11.81**		
Ethanol	5.60	46.07	0.28	1.24		yes
Ethyl Acetate	7.83	88.00	0.755	3.305		yes
Formaldehyde	**0.24**	**33.03**	**0.0086**	**0.0376**	**yes**	**yes**
Methanol (non-detect)	**0.24**	**32.04**	**0.0083**	**0.0364**	**yes**	**yes**
Acetaldehyde	**9.87**	**44.05**	**0.477**	**2.087**	**yes**	**yes**
Acetic Acid	2.81	60.05	0.18	0.81		yes
Acrolein (non-detect)	**0.08**	**56.06**	**0.0051**	**0.0222**	**yes**	**yes**
2-Furaldehyde (non-detect)	0.07	96.09	0.0072	0.0314		yes
Lactic Acid (non-detect)	0.54	90.08	0.05	0.24		yes
Formic Acid (non-detect)	1.86	46.03	0.09	0.41		yes
Iso-amyl Alcohol	2.49	88.15	0.24	1.05		yes
Speciated Total	31.62		2.12	9.26		

"Projected Actuals" Calculations

CO2 Scrubber Controlled Potential to Emit Emissions

gallons of EtOH produced	65.0	MMGal/yr
Noncondensible factor	130.80	(dscfm / MMGal/yr EtOH)
Volume non-condensible gas	8,502	dscfm
Mw/Cw ratio	2.1289	mass VOC/mass Carbon
Statistical Confidence Interval Above Data	99%	

	Potential to Emit Estimate (ppm,d)	MW	lb/hr	tpy	HAP?	has IHB?
VOC (as Carbon)	283.56	12.00	4.50	19.73		
VOC, (scaled as VOC)	---	---	**9.59**	**42.00**		
Ethanol	10.72	46.07	0.65	2.86		yes
Ethyl Acetate	12.79	88.00	1.49	6.53		yes
Formaldehyde	**0.37**	**33.03**	**0.016**	**0.070**	**yes**	**yes**
Methanol	**0.38**	**32.04**	**0.016**	**0.071**	**yes**	**yes**
Acetaldehyde	**24.27**	**44.05**	**1.416**	**6.200**	**yes**	**yes**
Acetic Acid	5.96	60.05	0.474	2.076		yes
Acrolein (ND)	**0.10**	**56.06**	**0.0074**	**0.03251**	**yes**	**yes**
2-Furaldehyde	0.11	96.09	0.014	0.061		yes
Lactic Acid (ND)	0.71	90.08	0.08	0.37		yes
Formic Acid (ND)	2.62	46.03	0.16	0.70		yes
Iso-amyl Alcohol	6.76	88.15	0.79	3.46		yes
Speciated Total	64.79		5.12	22.43		

"Potential to Emit (PTE)" Calculations

VOC and Acetaldehyde estimates have been scaled up add additional conservatism based on stack test results.
is present at this source at all, so the emission projection is 0.10 ppm on the basis of expectation of non-detect at 0.20 ppm.

GPOT-0004531

Otter Tail Ag Enterprises, LLC
Vent Gas Scrubber Emissions (aka "Distillation" Scrubber)

SV027 **CE028** **---** **Vent Gas Scrubber**

Distillation Scrubber Inlet (uncontrolled) Concentration Supporting Data

	Average	Std. Dev	n	99% Confidence (high) Value	99% Confidence (low) Value	RANGE BETWEEN CONFIDENCE VALUES	Number of Rejected Values
VOC as Carbon (ppm,d)	**19766**	14423	3	**41215.43**	**< zero**	41,215	**2**

Distillation Scrubber (controlled) Emissions Supporting Data

	Average	Std. Dev	n	99% Confidence (high) Value	99% Confidence (low) Value	RANGE BETWEEN CONFIDENCE VALUES	Number of Rejected Values
VOC as VOC (ppm,d)	25.97	2.26	3	29.33	22.61	6.73	0
VOC as Carbon (ppm,d)	311.48	191.70	6	513.07	109.90	403.17	1
Ethanol (ppm,d)	15.92	9.70	3	30.35	1.49	28.86	0
Ethyl Acetate (ppm,d)	0.97	1.27	2	3.29	< zero	---	0
Formaldehyde (ppm,d)	0.38	0.36	3	0.92	< zero	---	0
Methanol (ppm,d)	0.33	0.14	3	0.54	0.12	0.42	0
Acetaldehyde (ppm,d)	5.23	7.20	3	15.95	< zero	---	0
Acetic Acid (ppm,d)	1.79	1.08	3	3.39	0.18	3.21	0
Acrolein (ND) (ppm,d)	0.08	na	1	0.08	na	---	0
2-Furaldehyde (ppm,d)	0.15	0.19	3	0.42	< zero	---	0
Lactic Acid (ND) (ppm,d)	1.41	1.29	2	3.75	< zero	---	0
Formic Acid (ND) (ppm,d)	1.66	NA	1	NA	NA	NA	0
Iso-amyl Alcohol (ppm,d)	---	---	0	---	---	---	0
Mw/Cw ratio	1.94	0.09	3	2.07	1.82	0.26	0
(dscfm / MMGal/yr EtOH)	5.86	3.11	7	8.89	2.84	6.05	0
%reduction	98.42%	---	---	99.73%	97.40%	2.33%	NA

Distillation Scrubber Uncontrolled Potential Emissions

gallons of EtOH produced	65.00	MMGal/yr
Noncondensible factor	5.86	(dscfm / MMGal/yr EtOH)
Volume non-condensible gas	381	dscfm
Mw/Cw ratio	1.94	mass VOC/mass Carbon
Statistical Confidence Interval Above Data	AVERAGE	

	Uncontrolled Estimate (ppm,d)	MW	lb/hr	tpy
VOC (as Carbon)	19766.11	12	14.07	61.64
VOC, (scaled as VOC)	---	---	27.37	**119.87**

"Uncontrolled Potential" Calculations

GPOT-0004532

Otter Tail Ag Enterprises, LLC
Vent Gas Scrubber Emissions (aka "Distillation" Scrubber)

Distillation Scrubber Projected Actual Emissions

gallons of EtOH produced	65.00	MMGal/yr
Noncondensible factor	5.86	(dscfm / MMGal/yr EtOH)
Volume non-condensible gas	381	dscfm
Mw/Cw ratio	1.94	mass VOC/mass Carbon
Statistical Confidence Interval Above Data	AVERAGE	

	Projected Actuals Estimate (ppm,d)	MW	lb/hr	tpy	HAP?	has IHB?
VOC (as Carbon)	311.48	12.00	0.22	0.97		
VOC, (scaled as VOC)	---	---	**0.43**	**1.89**		
Ethanol	15.92	46.07	0.0435	0.1906		yes
Ethyl Acetate	0.97	88.00	0.0051	0.0222		yes
Formaldehyde	0.38	33.03	**0.0008**	**0.0033**	yes	yes
Methanol	0.33	32.04	**0.0006**	**0.0028**	yes	yes
Acetaldehyde	5.23	44.05	**0.0137**	**0.0599**	yes	yes
Acetic Acid	1.79	60.05	0.01	0.03		yes
Acrolein (ND)	0.08	56.06	**0.0003**	**0.00119**	yes	yes
2-Furaldehyde	0.15	96.09	**0.0008**	**0.0036**		yes
Lactic Acid (ND)	1.41	90.08	0.0075	0.0331		yes
Formic Acid (ND)	1.66	46.03	0.0045	0.0198		yes
Iso-amyl Alcohol	---	88.15	---	---		yes
Speciated Total	27.93		0.08	0.36		

"Projected Actuals" Calculations

Distillation Scrubber Potential to Emit Emissions

gallons of EtOH produced	65.0	MMGal/yr
Noncondensible factor	8.89	(dscfm / MMGal/yr EtOH)
Volume non-condensible gas	578	dscfm
Mw/Cw ratio	2.07	mass VOC/mass Carbon
Statistical Confidence Interval Above Data	99%	

	Potential to Emit Estimate (ppm,d)	MW	lb/hr	tpy	HAP?	has IHB?
VOC (as Carbon)	737.25	12.00	0.80	3.48		
VOC, (scaled as VOC)	---	---	**1.65**	**7.23**		
Ethanol	30.35	46.07	0.13	0.55		yes
Ethyl Acetate	**3.29**	**88.00**	**0.0261**	**0.1141**		**yes**
Formaldehyde	**0.92**	**33.03**	**0.0027**	**0.0119**	**yes**	**yes**
Methanol	**0.54**	**32.04**	**0.00157**	**0.00686**	**yes**	**yes**
Acetaldehyde[1]	**15.95**	**44.05**	**0.0632**	**0.2767**	**yes**	**yes**
Acetic Acid	**3.39**	**60.05**	**0.0183**	**0.0803**		**yes**
Acrolein (ND)	**0.08**	**56.06**	**0.00041**	**0.00180**	**yes**	**yes**
2-Furaldehyde	**0.42**	**96.09**	**0.0037**	**0.0160**		**yes**
Lactic Acid (ND)	**3.75**	90.08	0.030	0.133		yes
Formic Acid (ND)	**1.66**	46.03	0.007	0.030		yes
Iso-amyl Alcohol	**---**	88.15	---	---		yes
Speciated Total	60.36		0.28	1.22		

VOC emissions have been increased to add additional conservatism based on stack test results.

"Potential to Emit (PTE)" Calculations

GPOT-0004533

Otter Tail Ag Enterprises, LLC
Regenerative Thermal Oxidizer Emissions

SV028 **CE030** **EU052** **RTO**

TO Inlet (uncontrolled) Concentration Supporting Data

	Average	Std. Dev	n	99% Confidence (high) Value	99% Confidence (low) Value	RANGE BETWEEN CONFIDENCE VALUES	Number of Rejected Values
Carbon Monoxide (CO) (ppm,d)	243.26	254.58	4	571.13	< zero	---	0
VOC as Carbon (ppm,d)	1803.67	555.50	16	2161.39	1445.95	715.44	2
[dscfm/(ton DDGS/hr)]	2469.71	1624.59	13	3630.32	1309.09	2321.23	1

TO Outlet (controlled) Emissions Supporting Data

	Average (ppm,d)	Std. Dev	n	99% Confidence (high) Value	99% Confidence (low) Value	RANGE BETWEEN CONFIDENCE VALUES	Number of Rejected Values
Particulate Matter (PM) (gr/dscf)	0.00902	0.00688	14	0.01376	0.00429	0.00947	0
Nitrogen Oxides (NOx) (ppm,d)	38.47367	11.17310	10	47.57470	29.37263	18.20207	0
Carbon Monoxide (CO) (ppm,d)	73.63	19.02	14	86.72	60.53	26.19	0
VOC as Carbon (ppm,d)	29.67	27.71	13	49.47	9.87	39.59	3
Ethanol (ppm,d)	1.67	2.41	8	3.87	< zero	---	0
Ethyl Acetate (ppm,d)	0.10	0.06	4	0.10	0.03	0.07	0
Formaldehyde (ppm,d)	0.64	0.56	8	1.16	0.13	1.03	0
Methanol (ppm,d)	0.40	0.31	8	0.69	0.12	0.57	0
Acetaldehyde (ppm,d)	0.85	0.39	7	1.23	0.48	0.76	2
Acetic Acid (ppm,d)	2.42	1.91	8	2.42	0.67	1.74	1
Acrolein (ND) (ppm,d)	0.13	0.07	8	0.19	0.06	0.13	0
2-Furaldehyde (ppm,d)	0.06	0.02	6	0.08	0.04	0.04	0
Lactic Acid (ND) (ppm,d)	0.74	0.25	7	0.99	0.50	0.49	0
Formic Acid (ND) (ppm,d)	2.23	0.90	5	3.27	1.19	2.08	0
Iso-amyl Alcohol (ppm,d)	0.05	0.04	3	0.05	< zero	---	0
Mw/Cw ratio	2.18	0.18	8	2.34	2.02	0.32	0
%reduction	98.35%	---	---	99.54%	96.58%	2.96%	0

DRYER Uncontrolled Potential Emissions

DDGS mass rate 24.23 tph
[dscfm / (ton DDGS/hr)] 2469.71

TOTAL Flow Rate Based on DDGS 59,831 dscfm

TOTAL Flow **59,831 dscfm**

"Uncontrolled Potential Emissions"

Mw/Cw ratio 2.34 mass VOC/mass Carbon
Statistical Confidence Interval AVERAGE

	Uncontrolled Estimate (ppm,d)	MW	lb/hr	tpy
Carbon Monoxide	243.2625	28	63.45	277.93
VOC (as Carbon)	1803.67	12	201.64	883.17
VOC, (scaled as VOC)	---	---	472.19	**2068.18**

GPOT-0004534

Otter Tail Ag Enterprises, LLC
Regenerative Thermal Oxidizer Emissions

DDGS Dryer Controlled Emissions (w/RTO)			
Dryer Burner Capacity	90	MMBtu/hr	
RTO Burner Capacity	8.8	MMBtu/hr	(normal operation is expected to be 8.8 MMBtu/hr
Total Firing Capacity of System	98.80	MMBtu/hr	
F-Factor Nat. Gas	8,710	dscf/MMBtu	
Oxygen at Stack	10.00%	% O2	
Excess Air Factor	1.9174		
TOTAL Flow	**27,501**	**dscfm**	

Mw/Cw ratio	2.18	mass VOC/mass Carbon
Data Basis	VeraSun Aurora Performance	

	Projected Actuals Estimate (ppm,d)	**MW**	**lb/hr**	**tpy**	**Emission Factor (lb/MMBtu)**	**% Conservative compared to Proj Actual**	**"Projected Actual" Emissions**
Particulate Matter (PM) (gr/dscf)	**0.00902**	**NA**	**2.127352585**	**9.32**	**0.022**	**0.0%**	
Nitrogen Oxides (NOx) (ppm,d)	**29.67**	**46.0055**	6.39	**27.99**	**0.065**	**0.0%**	
Sulfur Dioxide (SO2) (ppm,d)	**5**	**64.0588**	1.50	**6.57**	**0.015**	**0.0%**	
Carbon Monoxide (CO) (ppm,d)	**73.63**	**28.0104**	9.65	**42.28**	**0.098**	**0.0%**	
VOC (as Carbon) **(1)**	29.67	12.00	1.52	6.68			
VOC, (scaled as VOC)	**---**	**---**	**3.32**	**14.56**			
					HAP?	**has IHB?**	
Ethanol	1.67	46.07	0.33	1.45		yes	
Ethyl Acetate	0.10	88.00	0.04	0.17		yes	
Formaldehyde	0.64	**33.03**	**0.09**	**0.40**	**yes**	**yes**	
Methanol	0.40	**32.04**	**0.055**	**0.242**	**yes**	**yes**	
Acetaldehyde	0.85	**44.05**	**0.16**	**0.71**	**yes**	**yes**	
Acetic Acid	2.42	60.05	0.62	2.72		yes	
Acrolein (ND)	0.10	**56.06**	**0.024**	**0.105**	**yes**	**yes**	
2-Furaldehyde	0.06	96.09	0.025	0.108		yes	
Lactic Acid (ND)	0.74	90.08	0.29	1.26		yes	
Formic Acid (ND)	2.23	46.03	0.44	1.92		yes	
Iso-amyl Alcohol	0.05	88.15	0.02	0.08		yes	
Speciated Total	9.27		2.09	9.16			

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DDGS Dryer Controlled Emissions (w/RTO)		
Dryer Burner Capacity	90	MMBtu/hr
RTO Burner Capacity	18	MMBtu/hr
Total Firing Capacity of System	108.00	MMBtu/hr
F-Factor Nat. Gas	8,710	dscf/MMBtu
Oxygen at Stack	10.00%	% O2
Excess Air Factor	1.9174	
TOTAL Flow	**30,061**	**dscfm**
VOC Mw/Cw ratio	2.34	mass VOC/mass Carbon

	Potential to Emit Estimate	MW	lb/hr	tpy	Emission Factor (lb/MMBtu)	% Conservative compared to Proj Actual
Particulate Matter (PM) (gr/dscf)	**0.020**	**NA**	**5.15**	**22.57**	**0.048**	**142.2%**
Nitrogen Oxides (Nox) (ppm,d)	**52.5**	**46.0055**	**11.32**	**49.56**	**0.105**	**77.1%**
Sulfur Dioxide (SO2) (ppm,d)	**10.0**	**64.0588**	**3.00**	**13.13**	**0.028**	**100.0%**
Carbon Monoxide (CO) (ppm,d)	**98.4**	**28.0104**	**12.91**	**56.54**	**0.120**	**33.7%**
VOC (as Carbon)	**21.97**	12.00	1.23	5.41		80.94%
VOC, (scaled as VOC)	---	---	**2.89**	**12.66**		86.96%
					HAP?	**has IHB?**
Ethanol	3.87	46.07	0.83	3.66		yes
Ethyl Acetate	0.10	88.00	0.04	**0.19**		yes
Formaldehyde	1.16	**33.03**	0.18	**0.78**	**yes**	**yes**
Methanol	0.69	**32.04**	0.10	**0.45**	**yes**	**yes**
Acetaldehyde	2.77	**44.05**	0.57	**2.50**	**yes**	**yes**
Acetic Acid	2.42	60.05	0.68	2.98		yes
Acrolein	0.10	**56.06**	0.026	**0.115**	**yes**	**yes**
2-Furaldehyde	0.08	96.09	0.036	0.16		yes
Lactic Acid (ND)	0.99	90.08	0.42	1.83		yes
Formic Acid (ND)	3.27	46.03	0.70	3.08		yes
Iso-amyl Alcohol	0.05	88.15	0.02	0.09		yes
Speciated Total	15.49		3.61	15.83		

"Potential to Emit" Emissions

VOC and Acetaldehyde emissions have been set based on stack test data from the source.

PM, NOx, and CO estimates have all been arbitrarily increased above the high-end data in the dataset to increase facility limited PTE to regulatory thresholds.

Acrolein is consistently non-detect at 0.20 ppm at this source. The distribution in the dataset is created only by varying detection limits between tests. There is significant uncertainty about whether acrolein is present at this source at all, so the emission projection is 0.10 ppm on the basis of expectation of non-detect at 0.20 ppm.

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